THE HEALTH MAGAZINE

HYGEIA

The Common Cold

See page 15

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MODERN MEDICAL CHARLATANS • SKIING
AIR CONDITIONING • • • • DIPHTHERIA

AN AMERICAN MEDICAL ASSOCIATION PUBLICATION

IT IS a *good* habit to encourage. The pure juices of sun-ripened grapefruit, oranges, pineapples, and tomatoes, are good *for* children because they contribute important vitamin C to their diets. It is an easy habit to teach, because these juices are so delicious and refreshing that children love them.

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We remember when orange juice was taboo because "it curdled the milk," and when children died like flies of smallpox and diphtheria. It was thought quite necessary then for them to have all the diseases of childhood such as whooping cough, scarlet fever, rickets, mumps, and decayed teeth.

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BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

This space is devoted to the interests of better babies by
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JANUARY 1938 Vol. 16 No. 1

HYGEIA

THE HEALTH MAGAZINE

Published and copyrighted, 1937, by the American Medical Association. Edited by Morris Fishbein, M.D.

PRESENTING

MORRIS FISHBEIN, M.D., Editor of HYGEIA and of *The Journal* of the American Medical Association, whose exposés of quacks and charlatans have helped to make America safe for the public.

CHARLES G. LUND, M.D., assistant professor of surgery, Harvard University Medical School. As a member of the committee on first aid for skiers, Eastern Amateur Skiing Association, and as author of "Do's and Don'ts for Safe Skiing," Dr. Lund is well qualified to give advice on mishaps in skiing and how to meet them.

FLORENCE MARVYNE BAUER, magazine and radio writer, who presents a forceful play concerning a woman's club and its study of animal experimentation. Formerly a nurse, Mrs. Bauer, wife of a physician, has a clear insight into the physical and mental quirks of the so-called human race.

EDWARD JACKSON, M.D., emeritus professor of ophthalmology, University of Colorado School of Medicine, who, believing that light brings life and joy to the world, advocates that the home should have its full share.

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MEET JACK AND MARY

. . . Two parents *Everyone says are lucky*

ONE look at those two bright-eyed, healthy youngsters of theirs and you'd call them lucky, too. But *they* have another name for it. If you were to ask them, they probably would tell you: "If we have made a success of parenthood it isn't just plain luck . . . but neither is there any secret to our method. We simply keep them happy, give them lots of love, wholesome food, and see to it that there is always a supply of I.V.C. Halibut Liver Oil on the pantry shelf."

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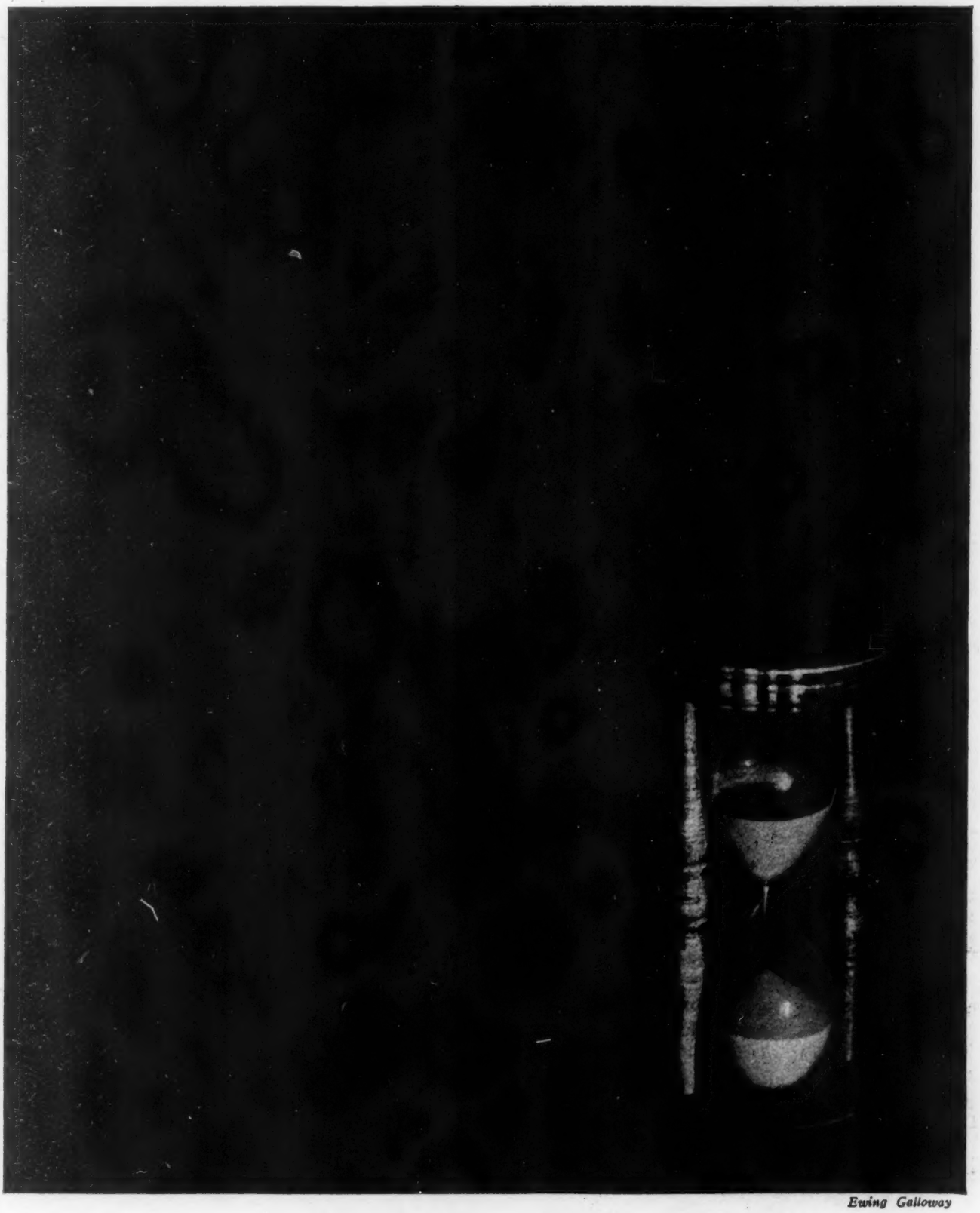


Ewing Galloway

AND YE, WHO HAVE MET WITH ADVERSITY'S BLAST,
AND BEEN BOW'D TO THE EARTH BY ITS FURY;
TO WHOM THE TWELVE MONTHS, THAT HAVE RECENTLY PASS'D
WERE AS HARSH AS A PREJUDICED JURY—
STILL, FILL TO THE FUTURE! AND JOIN IN OUR CHIME,
THE REGRETS OF REMEMBRANCE TO COZEN,
AND HAVING OBTAINED A NEW TRIAL OF TIME,
SHOUT IN HOPES OF A KINDLIER DOZEN.

—Thomas Hood.

EDITORIAL

THE SOCIAL DISEASES

A Statement Broadcast over NBC Blue Network,

Tuesday Evening, Nov. 16, 1937

By MORRIS FISHBEIN, M.D., Editor of Hygeia

KNOWN TO THE WORLD for centuries, the venereal diseases, sometimes called the social diseases, have gradually developed increasing prevalence and prominence, while *other* infectious diseases have gradually been brought under control. If these diseases were transmitted chiefly by flies or mosquitoes, they would long since have been stamped out. They happen, however, to be social diseases in a different sense from the other conditions that are similarly classified.

Any disease that is largely resultant from poverty and malnutrition, any disease that is associated with poor housing, overcrowding or economic causes dependent on the people as a whole, is a social disease just as much as are those conditions which have been called social diseases simply because people are afraid of a word. The word "syphilis" is not a new word. It was coined in 1530 by an Italian doctor who wrote a poem about it. But it has taken more than 400 years to bring the word out into the light of public discussion. Simply because this disease is so intimately concerned with the personal lives of human beings, simply because it is spread primarily by relationship between human beings, simply because it is so closely associated with the maintenance of our moral standards, discussion has been inhibited and control thereby made more difficult.

Surgeon General Thomas Parran of the United States Public Health Service should be accorded the credit for bringing the control of these diseases more prominently to the public mind. He led in opening sound scientific discussion of these diseases as a means to permanent decrease in our overwhelming rates. There are no doubt from 400,000 to 600,000 new cases every year. His book, "Shadow on the Land," tells the facts simply and directly.

As with every other new movement in the field of medicine or of public health, sensationalists and exploiters have attached themselves to this new campaign in the field of public health. They use public interest to found fake social hygiene societies and to promote inefficient or extravagant unscientific treatments.

Physicians, public health officers, newspapers, magazines and the radio, for that very reason, must concern themselves with legitimate education. More harm than good can come from misguided efforts.

Again and again the people have been told about the havoc that is wrought by the venereal diseases. All of us ought to know that there is not just one but several diseases that affect the organs and tissues of men and women concerned in childbirth or in intimate personal relations. Most of these diseases are spread by human contacts. Occasionally these infections are acquired innocently. There is the innocent infection of the eyes of the child at birth, against which most intelligent governments have taken action by the demand that physicians and midwives, at the time of childbirth, use a simple antiseptic substance in the eyes. Occasionally the lip is infected by promiscuous kissing. There are rare instances of infection transmitted innocently, as was the case when the policeman was bitten on the thumb by a woman who was resisting arrest.

The vast majority of cases of infection with the venereal diseases, however, represent intimate personal contacts. Infections perhaps acquired outside the marriage tie are transmitted in the ordinary course of life by the father to the mother, or by the mother to the father, or by the mother to the child. Surely these also are innocent infections. Those entrusted with the protection of these loved ones thus do harm to the very people whom they would most desire to protect.

Perhaps a hundred years ago, or even fifty years ago, silence regarding these disorders might have been warranted. In those days the diseases were often considered incurable. Scientific medicine was not in possession of the necessary knowledge to control or to cure. We did not know the causative organisms. We did not recognize the methods of transmission. We did not have available certain methods of diagnosis or the vast armamentarium of drugs and other methods of treatment now available.

Today the history of the venereal diseases is definitely associated with the names of great men who have made fundamental contributions, several of them winners of the Nobel prize in medicine. We think of Schaudinn and Hoffmann who discovered the organism or germ that caused syphilis and of Neisser who discovered the germ called Gonococcus; we think of Wassermann who first developed the test which is an almost certain method of diagnosis, and of Kahn and others who have introduced modifications and improvements of this test. We think of Paul Ehrlich who introduced "606," called salvarsan or arsphenamine in treatment, and of Noguchi, the famous Japanese investigator in the Rockefeller Institute, who proved that such disorders of the brain and of the nervous system as locomotor ataxia and paresis were also due to infections by the spirochete.

In connection with the name of Neisser, we think of Credé who introduced the method of treating the child's eyes at birth for prevention of the opththalmia due to the gonococcus which causes blindness.

The use of these discoveries and the campaign against these diseases have languished primarily because many people do not know the nature of the diseases. People do not realize the havoc they cause, do not know they are curable.

The little organisms or germs that cause these diseases are tiny indeed, but the damage they can do

is tremendous. Two thousand of the little corkscrew-like parasites of syphilis laid end to end barely make an inch. Seen under a microscope they are fascinating; in the human body they are devastating. They invade every tissue. They break down the blood vessels, and they injure the mechanism of the heart. Perhaps 10 per cent of heart disease, which is our leading cause of death, may be ascribed to their depredations. They soften the brain and help to keep the insane asylums populated. As many as three out of every hundred babies born are said to be contaminated at the time of birth. Unless they are promptly treated they are likely to sicken and die.

And the little round germs that cause the second great venereal disease, gonorrhea, may also invade the joints, the heart, the eyes or the spine and make out of a human being a pitiful mass of human wreckage.

Today scientific medicine, combining its efforts with those of public health officials, is beginning an organized, sustained campaign against the venereal diseases, a campaign in which the public is participating on a tremendous scale. Throughout the country, women's clubs, the junior chambers of commerce and similar organizations are aiding in dissemination of knowledge. Intelligent people are voluntarily submitting themselves to Wassermann tests as examples to others.

A few states have already passed laws requiring Wassermann tests and microscopic slide examinations in order to make certain that both prospective bride and groom are free from venereal diseases before marriage. Both the bride and the groom ought to have the evidence of freedom from disease before embarking on a life of companionship.

These diseases are no respecters of persons. They are found among the rich and the poor, the ignorant and the educated, the young and the old. But the extent to which they appear in various groups differs. There may be from seven to ten out of every hundred persons in the United States who are infected, but among the criminal elements and the very dregs of human society from thirty to forty out of every hundred are found to be infected. And those who live in the destitution and filth of the lower depths are likewise more heavily infected than the majority of the American people.

In industries the costs of venereal diseases are tremendous. It has been estimated that from 8 to 10 million workers lose 21 million working days each year at an average cost of $4 a day as the result of infection with these conditions. The cost may well mount to more than $100,000,000 annually. Those who hesitate to approve increased appropriations for preventive medicine should consider the folly apparent in such economy.

In many places, under the leadership of public health officials, notably in the city of Chicago, great numbers of the public have volunteered in reply to a questionnaire issued by the health department to have a Wassermann test.

The American Social Hygiene Association has established a national committee against syphilis with General Pershing as its chairman, with a view to opening in February 1938 a nation-wide program of education leading to the elimination of the venereal disorders. Armed with the knowledge provided by scientific medicine and research led by public health officials with an understanding of the nature of these problems, and aided by the entire organized medical profession of the United States, as represented by the American Medical Association, they find the time has come to prove to the world that under the American system of living it is possible to achieve rates for the venereal diseases similar to those which have been achieved in other conditions.

There is a great difference in the length and cost of treatment, depending on whether the disease is detected and treated early or whether weeks or months elapse before the person who is infected gets the right kind of medical attention. The spirochetes and the bacteria sometimes seem to be taking vacations in the body because the person who is infected and who has had a little treatment may go along for months or even years without any serious symptom. Then suddenly these vicious germs go into action. The results are disastrous. Some years ago a train on a great railroad was wrecked and more than forty passengers were killed because the engineer, who had never been properly examined, had begun to develop the symptoms of general paralysis. That will never happen again on that railroad. When you trust your life to a chauffeur, an airplane pilot or an elevator operator, do you ever wonder how recently he has had a Wassermann test? The time will come when control of these diseases will bring our rates down as low as those of other countries. Even then, however, there should be regular examinations for those on whose physical integrity the lives of thousands of people may depend.

Today the death rates in American communities for tuberculosis, for typhoid, for diphtheria and for many similar conditions are less than those of most other large civilized communities throughout the world.

Many American cities, villages, towns and hamlets have reported an entire year without a single death from diphtheria or from typhoid. We now possess the knowledge necessary to secure results that will permit a similar claim in relation to the venereal diseases. In some foreign countries these conditions have been controlled by a system of governmental exercise of police power, such as would hardly be tolerated by American citizens—laws which provide penalties in the forms of fines and imprisonment for those who fail to report cases, for persons who are sick who fail to return for treatment and for those who are infected who fail to provide the names and addresses of those with whom they have been in contact. That is not the American system.

Throughout our country today, physicians are being brought up to date by their own efforts; through their own organizations they receive postgraduate education in modern methods of diagnosis and treatment of these diseases.

Doctors everywhere, whether recent graduates or practitioners of long standing, are being given special training in these matters. They are ready at all times to supply their services to those who are sick, either as private patients or in the clinics, where physicians constantly offer a high quality of medical service to those unable to pay or able to bear only a part of the necessary costs.

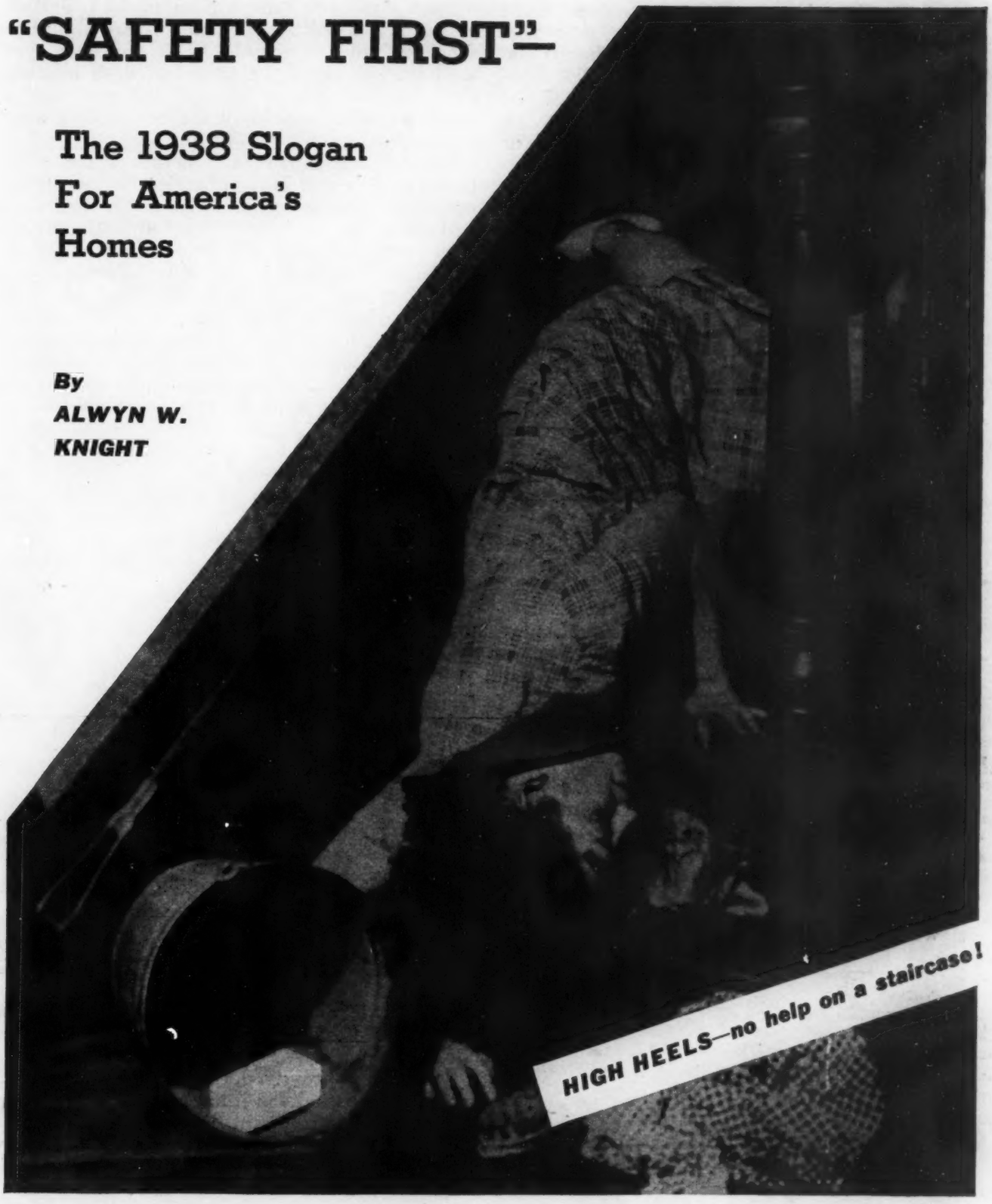
In many states, funds are being made available through public health departments or from other sources to aid in purchasing the necessary drugs for those who cannot pay the full costs of treatment. The patient himself must volunteer for examination and must persist in his treatment.

The campaign must be a campaign of teamwork by all the agencies in every community, utilizing to the utmost the knowledge and funds available.

"SAFETY FIRST"—

The 1938 Slogan For America's Homes

By ALWYN W. KNIGHT



AMERICA, land of amazing contradictions, has pulled a new and bigger rabbit out of its hat, and even America is surprised. It is also alarmed, for the rabbit has grown with incredible rapidity—looks and acts more like a white elephant with an ingrown tusk than the *sine qua non* of a parlor magician. Certainly it is now too big to be longer hid in the homes that bred it, and it is a good thing that this insidious product of too much privacy has at last been dragged into the open where it must engage in a knock-down-drag-out fight with public opinion.

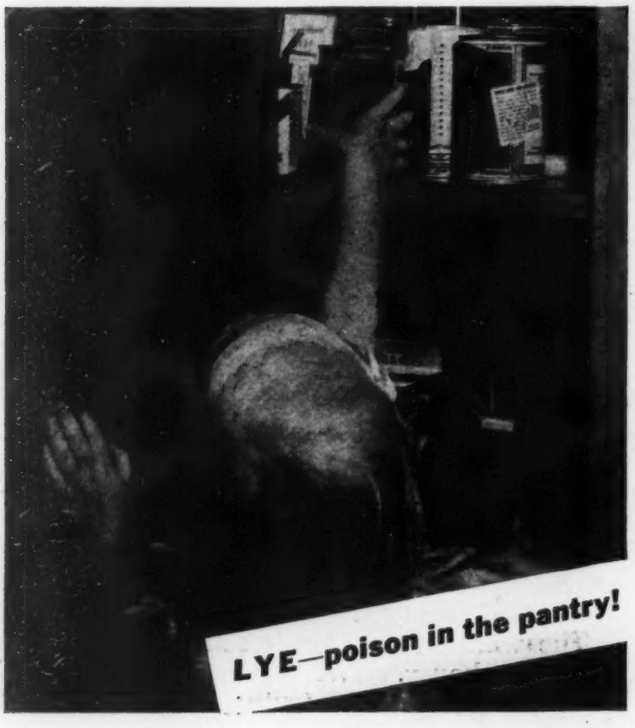
The white elephant referred to is the home accident bogey. With stuttering disbelief, America gapes at the truth: During 1936, for

the first time since 1928, more persons were killed in accidents in their homes than met death on the country's highways, although the latter have long been advertised as the dangerous home stretch on which the race of life and death is run and lost.

During 1936, home accidents accounted for 38,500 fatalities and mutilated 170,000 other persons. Highway accidents rose less like yeast in a hot oven, killed a total of 37,800 and seriously injured 105,000. The increase in highway accidents is readily traceable to the increase in gasoline consumption and the pyramiding of new and used car sales; indeed, it is a tribute to the organizations engaged in cutting the motor vehicle accident rate that the count, though increased, did not soar higher. But to what can we attribute the kangaroo jump in home accidents? Excessive heat is only the smoke screen concealing the important reason.

This poser is easily answered by one word: privacy! A hip broken by a fall in the family bathtub is not a sprightly topic of after-dinner conversation; we do not brag about slipping on a carpet which could so easily have been made nonskid; there can be no glory in poisoning our children through carelessness in leaving medicine bottles about. In short, home accidents result from a personalized equation of mischief-making and stupidity. Those responsible maintain a discreet silence, and naught but a carefully concealed "X" marks the spot. Only the immediate family profits by the experience.

There is drama in an automobile wreck; and on the highway, death plays to a full house. The passing motorist sits in the spectator's seat and carries a lasting impression of mangled bodies and pain on parade.



Most of us have been witness to the frightfulness of a scene of this sort, and we are naturally shocked into awareness. With our own eyes we have perceived the pound of flesh exacted by carelessness. And because we have seen it happen to others, we know that some day it may happen to us. We step on the brake.

But an accident in the home is the antithesis of this and is a perennial fugitive from publicity. Home accidents go in the bedroom and close the door; they steal into the living room and pull down the shade and whisper in the cellar and hide in the attic. Perhaps you hear that Mrs. Jones down the street fell and broke her leg. No word picture there. And you do not ask for details. Oh, no, that would be prying, for the home is inviolable, and a man's home life is strictly private—unless he runs away with his neighbor's wife, which is no accident.

The rest of us feel that the occurrence of home accidents is slightly ridiculous. It is fundamental to laugh at a person who high-kicks with both feet at the same time. So we shrug and watch our step crossing the street; yet we stride across a waxed floor with our

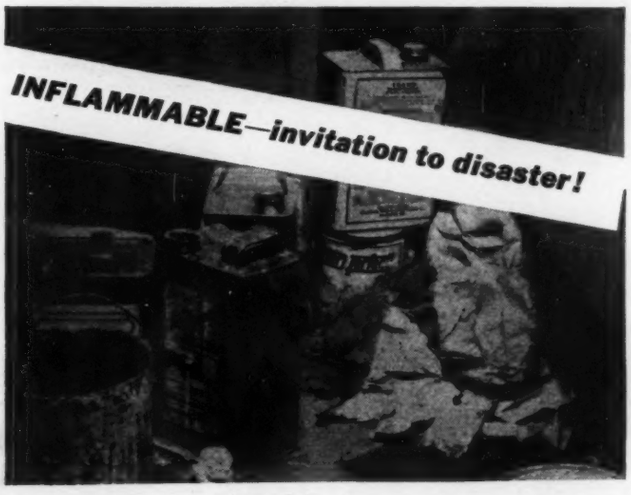
nose in the air, smugly certain that if worst comes to worst, equilibrium will win hands down over gravity.

And when gravity does levy its surprise tax we take steps to hush it up, make sure the local paper does not get the item. Years later we would sound so foolish telling the world why Jimmy wears that permanent brace on his leg. No, home accidents don't make good reminiscing.

But they can be dramatic and terribly tragic to the family circle. Listen! Mother is busy in the kitchen. Three year old Janice tags after her. Mother smiles at the child lovingly, a little absently; there is so much to be done this morning. Janice will keep out of mischief, surely. But wait! How about that singing teakettle on the stove? You notice how the handle

projects a little over the jets? Dangerous, isn't it? Still, Mother is right there. From time to time she glances at the child. Nothing can happen . . .

Look! Janice is walking backward—just as a child will. She is getting nearer the stove—nearer, nearer, nearer. Janice, stop! Mother, look up; please look up! Still time. Speak sharply, Mother, sternly. Isn't it for just such a crisis that you drilled her in instant obedience? It's that kettle—don't you see—? Ah, you do look up. Your eyes widen, but horror makes of your mouth only a silently widening oh-h-h. Too late now, Mother. She'll stop



screaming soon. The screams grow fainter already. No, never mind the doctor. He can't help now. And stop that foolish running in circles with your hands over your ears. Mother, *you* did it! If you had pushed the teakettle back just a little it would not have happened. No, I know you never thought of the kettle; but now how will you ever forget it, Mother?

Another death which could have been so easily avoided. Another fatality caused by a hazard so familiar it was not even noticed. It is the familiarity of these hazards which makes them so deadly. A teakettle, even if it is set near the front edge of the stove, seems harmless enough, almost guileless. It is hard to associate the impedimenta of domesticity with danger. And do you suppose *that* mother told exactly how *that* particular accident happened? The chances are that she eventually succeeded in convincing herself that the child somehow knocked the kettle of scalding water from a safe spot on the stove.

If every home accident that ended in tragedy could be so publicized, the rate would drop. If the human, heartbreaking story behind the story could only be told—if only our houses were glass and the world could profit by the visual prognosis of our suicidal indifference! Scalds, burns, falls, asphyxiation, infections—little by little these apocalyptic jockeys, now under wraps, would be overtaken and left in the ruck. But this is only wishful thinking. A man's home is his castle, and the portcullis is guarded, the drawbridge raised against outside interference.

It is ironically true that a mother worries about her child when he is out of sight. She dreads, for instance, the necessary walk alone to and from school, thinking in graphic terms of busy corners and speeding cars. When the boy is safe at home she draws a deep breath of relief, when, as a matter of record, her real worrying should start then. In 1936, only 7 per cent of the youngsters accidentally injured were hurt going to and from school; 28 per cent were hurt in the alleged haven of their own homes!

There is a story which carries point and is vested with a certain grim humor. An elderly lady, visiting the waterfront in the course of a slumming party, accosted a sailor. Said the lady, "Aren't you afraid to go to sea where so many people drown?" Said the sailor: "Aren't you afraid to go to bed where so many people die?"

What does the balance sheet for 1936 show? Where in the home should we tread with care, and where, if there is such a spot, may we relax? Death has so often been pictured behind the wheel of a car, as rising wraithelike from cannon smoke or standing silent sentinel during flood and famine, that it will be difficult to visualize the grim reaper reclining in an easy chair at the hearthside. And here death does not enter stealthily but is a tolerated guest who stacks his scythe in the umbrella rack and bides his time.

The new annual report of the National Safety Council submits some startling figures on accidents in general. From 1935 to 1936 the national accident death rate increased 10 per cent. Accidents cost $3,700,000,000, killed 111,000 persons, permanently disabled 400,000 others and injured 10,730,000. The accident death rates per capita of twenty-three foreign countries whose records are available are all considerably

lower than the accident death rate of the United States.

Of all accident fatalities, 35 per cent happened in the home and 34 per cent on the highway; 18 per cent resulted from public accidents (motor vehicle not included), and 16 per cent were occupational fatalities.

If fatal accidents are grouped by types we find that motor vehicle leads with 36 per cent of the total; falls come second with 25 per cent, burns third with 8 per cent and drownings fourth with 7 per cent. And 74 per cent of all fatal falls and 81 per cent of all fatal burns occur in the home!

During 1936, accidental deaths claimed 300 lives each day. During last year, accidents were the fatality equivalent of a New London, Texas, school explosion every twenty-four hours. In men, only heart disease is more deadly than accidents.

But to return to home accidents—these statistics should bait our laggard concern:

Home accidents resulted in nonfatal injuries to 5,600,000 persons and *(Continued on page 85)*

Rational Resolutions for the New Year

For the sake of safety for my family, my guests and myself, I resolve that I will

1. Never substitute chairs, barrels and boxes for stepladders.
2. Have stairways well lighted and protected by adequate guardrails.
3. Never leave toys and other articles on stairs and floors.
4. Never use small rugs on slippery floors which are not provided with a nonskid backing.
5. Have all bathtubs equipped with accessible hand holds and rubber suction mats.
6. Protect low windows, trap doors, chutes and areaways with guard-rails.
7. Never leave matches where children can reach them.
8. Never leave pots and pans on stove with their handles projecting outward.
9. Never use gasoline or inflammable cleaning fluids for dry cleaning at home.
10. Discard frayed electrical appliance cords where the insulation has been worn off.
11. Never leave fireplaces unscreened.
12. Be careful not to have electric wire run under rungs or touch nails or other metal objects.
13. Have joints, flues and chimneys inspected and cleaned.
14. Never smoke in bed.
15. Never use sun or health lamps in the presence of tortoise shell combs or glasses where they may be affected by the heat.
16. Never use cheap electric heating pads which are improperly insulated.
17. Never allow rubbish, rags or newspapers to accumulate.
18. Never deposit furnace ashes in boxes, wooden barrels or baskets.
19. Never run the automobile in the garage without bothering to be sure the door is wedged open.
20. Never touch electrical fixtures with wet hands.
21. Always fasten pillows and bedclothes to the mattress in children's cribs to prevent suffocating.
22. Never leave a small child in the bathtub while I am out of the room.
23. Never leave knives or other sharp instruments in children's reach.
24. Never allow a child to run with sharp things in his hands and mouth.
25. Never hoard old and useless medicines purchased for a particular illness.
26. Always label poison bottles plainly and keep locked any medicine cabinets which are within reach of children.
27. Always keep washing powders, lye and ammonia where they cannot possibly be reached by children.
28. Always unload firearms which are kept in the house.

[NOTE.—The above list of hazards is compiled from Red Cross, National Safety Council, Metropolitan Life Insurance Company and other sources. It is by no means complete; but if you do away with all these menaces, the chances are that no one in your home will be hurt during the year.]

THE COMMON COLD

HOW to combat it, WHAT to avoid, WHEN to know its approach and WHY it can happen to you!

By LOWELL C. WORMLEY

GENERALLY considered by the public as a minor rather than a major illness, the common cold, with the severe complicating illnesses that may follow it, receives too little thought. Yet this common but expensive malady incapacitates more persons during March and October than any other disease.

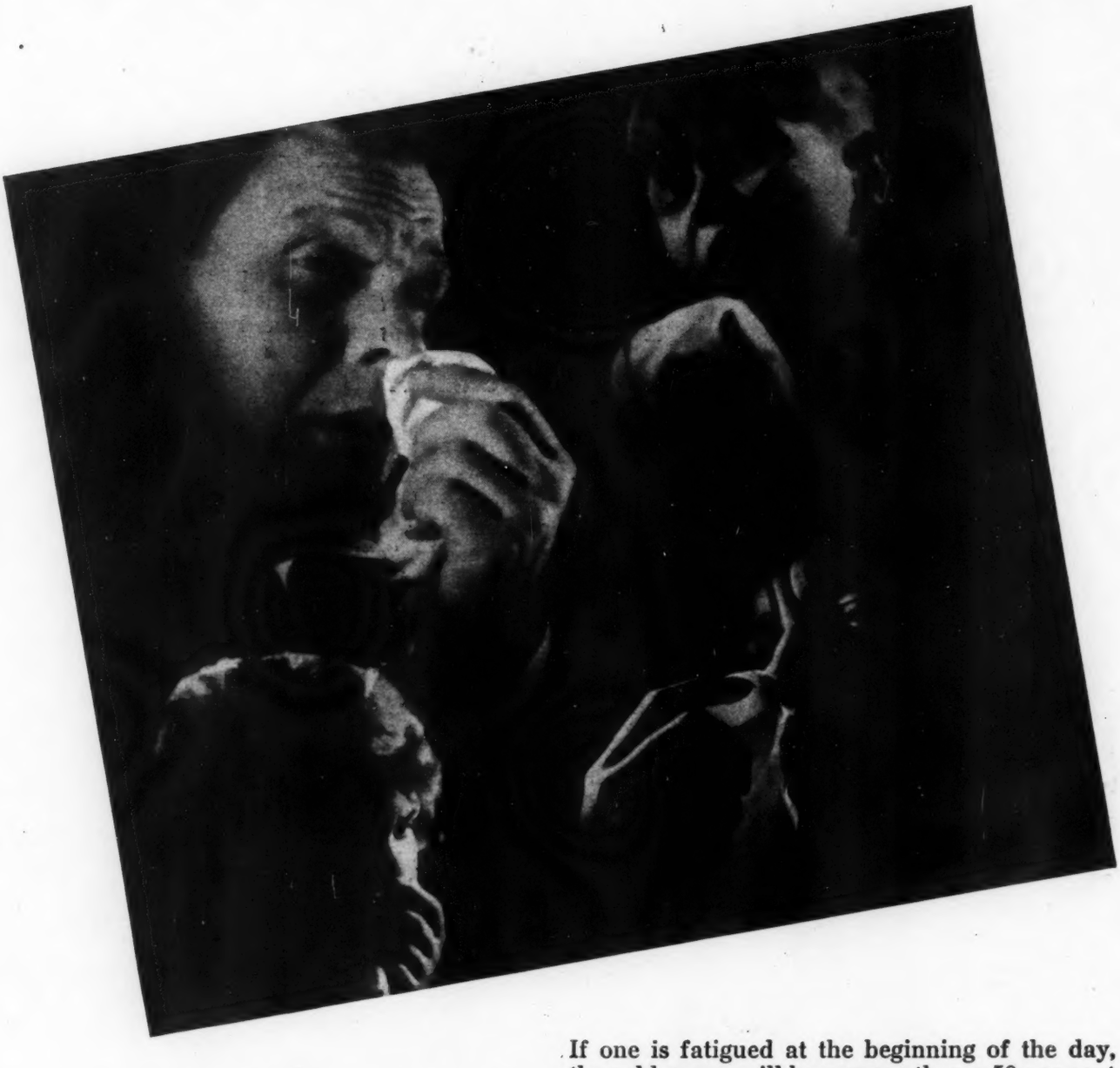
We have all experienced the symptoms of the common cold. It may start with a tightness in the head on awakening in the morning, followed by sneezing, a running nose, burning eyes, sore throat and perhaps a cough. With the possible exception in a person known to suffer from hay fever, under ordinary circumstances and in an otherwise healthy individual, these symptoms usually mean the onset of an acute cold. The great loss of time and money, the discomfort and the danger from the persistence of a cold necessitate consideration of the many factors involved in its cause and prevention. Since most medical men agree that a cold is partly due to factors existent in the nose and throat at the time the illness is contracted, our first consideration is with those normal peculiarities of the nose and throat that either make a cold possible or help to prevent it.

The nose or nasal cavity is constructed by nature to alter the varied qualities of air we breathe so that by the time the air reaches the upper part of the lungs it is near body temperature, slightly moistened and free from most dirt and dust particles.

These filtering qualities of the nose are carried out by the hairs in the front of the nose and by minute fibers called cilia. These combat the entrance of foreign particles and are usually successful in sweeping most of the dirt to the front part of the nose. The membrane or lining of the nasal cavity is bathed by a secretion or liquid substance which not only moistens the air as it passes by but helps to protect the lining from being infected by outside germs. The last function of the nose, that of keeping the air entering the nose at a temperature approximating that of the body, is maintained by two projections on the inside of the nose called turbinate bodies. These turbinate bodies have the ability to swell up and become engorged with warm blood as well as to give off secretion. Thus the inhaled air is again moistened and warmed as it passes these bodies on its way to the lungs.

Any factors that might upset the proper function of these natural barriers of the nose will allow for the invasion of the nose by foreign germs. One then loses natural protection against infection and disease and may easily "catch a cold." Sudden marked changes in the nature of inhaled air, such as changes in temperature, marked dryness or unusual humidity or irritating physical agents, such as dust, dirt and strong chemical vapors, all tend to lower the resistance of the membranes of the nose and to impair their protective ability. On the other hand, when warm moist air, free from irritating particles, is inhaled our nasal membranes are not overtaxed and can proceed with their job of combating germs that might either already be in the nose or have accidentally reached the nostrils from the cough or sneeze of a nearby person in a crowded subway or office building.

Every disease has one or more germs as its direct cause. The common cold, defying all conclusive investigation by the doctors, has numerous types of germs identified with its cause. The difficulty in studying these microscopic germs has made it almost impossible for medical science to obtain an exact and sure cure for the common cold. These infecting organisms, living especially in the nose and throat of a person with a cold, are thrown through the air with the spray of every sneeze or cough. If the bacteria happen to be inhaled by a person who for previously mentioned reasons has weakened the protective forces of his nasal membrane, they will cause a cold in a short time. On the other hand, it is not always necessary to come in contact with a person who has a cold in order to get one. The nose and throat of a perfectly healthy person carry germs capable in themselves of producing a cold when one is fatigued or "run down." So, without coming in contact with foreign germs through sneezes, coughs, kisses or drinking glasses, one may still catch a cold. In this case the general body resistance has been lowered by lack of sleep, improper diet, overwork or undue exposure in inclement weather.



It is therefore possible to catch a cold from some one else or to catch a cold without the aid of some one else; but in either case the predisposing cause is a lowering of the protective forces of the body by improper rest, diet or clothing.

Having thus established a mental picture of the nature and cause of the common cold, our next step is to consider the methods of prevention and cure. The most important factor in combating all disease is to keep one's general physical condition above par. This can be done by first getting proper rest. Eight hours of sleep for the adult and ten hours of sleep for the child every night is a foolproof practice if proper rest is to be obtained. The air should be fresh, slightly moist and around 68 F. The bed should be placed so that all drafts are avoided. Proper rest at night allows the many small cells in all the body organs to rest and refuel for the wear and tear of the next day's routine. If one is fatigued at the beginning of the day, the cold germs will have more than a 50 per cent chance of getting the upper hand. Next to be considered in keeping one's general physical condition above par are the type and amount of food eaten. Do not overeat; but do eat of a varied diet containing milk, eggs, fruit juices and green vegetables. Drink at least a quart and a half of water daily. Wear clothes suitable to the season. Undue exposure to the elements is a sure way to catch a cold. Fresh air and exercise outdoors fill the body cells with oxygen and thereby give them added strength. Try to take a walk in the open at least once a day. Added to these general measures of prevention are other more specific and equally important health rules for cold prevention:

1. Stay away from people with colds.
2. Keep clean inside and out. Always wash your hands with soap and water before eating and after toilet. Keep your bowels open.
3. Have diseased tonsils, adenoids and bad teeth removed.

THOUGH THE COMMON COLD MAY BE "FAMILIAR," IT SHOULD NOT BE TREATED WITH CONTEMPT. FOR IT IS COSTLY, INCAPACITATING AND POTENTIALLY DANGEROUS. START TREATING IT AT THE FIRST SIGN, AND USE EVERY PRECAUTION TO AVOID GIVING IT TO OTHERS.

4. Avoid carelessly washed drinking and eating utensils. They should be boiled before using.

If you have followed these precautions but find that in spite of your efforts to take care of yourself you continue to take cold, you should see a doctor. He may find it necessary to correct some physical condition before you can be properly protected from colds.

The time to start treating a cold is at the first sign of it. Rest in bed, if the cold is severe and accompanied by body pains and weakness. If it is slight, stay in the house. Remember that rest is the first essential in the treatment of a cold. Drink plenty of cold water and eat lightly of simple, wholesome food. Before retiring, drink a hot lemonade, take a hot bath and put an extra blanket on the bed. This will help to "sweat out" the cold. These are things "to do," but there are equally as important things "not to do" in treating a cold. They are:

1. Don't take "cold" tablets indiscriminately and without the advice of your doctor. Some of the medicines sold as remedies for colds are dangerous and bad for your heart and blood.

2. Don't blow your nose too hard. It may force the germs back into the sinuses and give you sinusitis. This condition, characterized by severe facial or head pain can be serious and may require operation. Forceful nose blowing will also send back germs into the eustachian tube, which is a tube on each side of the throat, leading from behind the nose to the ear. If infection gets into the ear, it will cause severe earaches and may also require opening of the ear, or if neglected still further it may cause a more serious infection called mastoiditis.

3. Don't neglect a cough that may be incidental to a cold. A cough means that a cold has extended to the bronchial tubes and a form of bronchitis has developed. Failure to seek professional advice at this point means risking the chance of getting bronchopneumonia or lobar pneumonia.

4. Don't give your cold to some one else. In public, turn your head, and cough or sneeze in your handkerchief. At home, see that your eating utensils are boiled after using them. Do not kiss any one while you have a cold. Ordinary colds are contagious, and the germs which cause them are easily transmitted from one person to another. A slight cold in one person may turn out to be a severe cold in another person.

A review of the important facts about the common cold reveals the following:

1. The ordinary cold is common but costly, incapacitating and potentially dangerous.

2. It starts with a tightness in the head, running nose, sneezing, burning of the eyes and perhaps a cough.

3. The cold is contracted through the nose and throat, but healthy individuals have a natural barrier to the cold germs if they keep their general physical condition above par.

4. The general physical condition of the individual is kept above par by getting adequate rest, eating proper foods, avoiding overeating, drinking sufficient fluids and protecting the body from inclement weather and sudden changes in temperature.

5. An individual may catch cold from a person who has a cold, or he may catch cold from the germs already existent in his nose and throat when he weakens his body reserve by dissipation.

6. Additional and specific prevention of colds lies in staying out of crowds and away from people who have colds, keeping clean both inside and out, correcting diseased conditions of the nose and throat, and avoiding carelessly washed eating and drinking utensils.

7. At the first signs of a cold you should start treatment right away. Get in bed, take a hot lemonade and add more covers to make you perspire. Drink plenty of water, and eat light, simple, wholesome food.

8. To prevent more serious developments: Don't blow your nose too hard; it may cause sinusitis, ear infection or mastoid infection. Don't take "cold" medicines without the advice of the doctor; they may affect your heart or blood. Don't neglect a cough, you may get pneumonia. Don't give your cold to some one else. It may go harder with him than with you.

Remember that though the common cold may be "familiar," it should not be treated with contempt.

"Johnny, come away from that window! Do you want to catch a cold?"

Of course, nobody wants to catch a cold! But how to avoid one; or, having been caught by one, how to rid oneself of it?

This most annoying of public pests, the common cold with its complications and consequences, goes on trial as Public Health Enemy No. 1 on Wednesday, January 5, in a nation-wide hook-up sponsored by the American Medical Association and the National Broadcasting Company. To start the year right, listen in and learn! The announcement will be found on page 70.

THE LILLIPUTIAN LANCE

An Article on Disease Prevention by Injection

OF ALL THE GIFTS it has been medicine's privilege to bestow on mankind, none has been more important than disease prevention by inoculation. Dating from the remarkable observation by Edward Jenner in 1796 that persons injected with the cowpox virus were immune to smallpox, the history of the world is inextricably linked with the chronicle of the achievements of those great men who gave their lives that the science of immunity might grow.

Immunity is of two kinds: active and passive. Active immunity is that immunity which is present when the body is able to resist its attacker by mustering its own forces. This is generally a permanent immunity. Passive immunity, on the other hand, is an evanescent defense which the body borrows to tide it over a difficult period. An apt, though trite, comparison may be invoked by comparing the person with active immunity to a country with its own standing army, ready to resist a marauder and do battle at any time; whereas the person with passive immunity is like the nation without ready soldiers which, unable to develop its own defense, acquires protection by hiring alien arms. Because of the relatively permanent nature of active immunity, physicians attempt to confer this type of immunity whenever possible. There are, at present, methods for producing immunity to smallpox, diphtheria, lockjaw, whooping cough, scarlet fever and typhoid; but only the inoculation against diphtheria and smallpox vaccination have received complete approval.

When desperate circumstances call for immediate measures to combat general or local body poisoning then passive immunity, achieved by serums and vaccines, plays the rôle of life saver in many diseases, among which are lockjaw, scarlet fever and more recently pneumonia. After arriving at his diagnosis, the physician injects the purified serums, originally drawn from human beings or selected animals previously rendered actively immune, and in this manner aborts or lessens the severity of the particular disease in the patient under treatment.

Vaccination against smallpox is the prototype of the many methods of active immunization. A simple scratch, a fresh virus, a lapse of ten days and a variable amount of redness and swelling about the site of inoculation, which later becomes a dimpled blister and finally crusts off, and for many years to come the child is protected from the dreaded scourge of the seventeenth and eighteenth centuries. He wears the proof of his resistance on his arm or leg, a mark which he must bear before he is admitted to the public schools in many cities, although he should have received the shielding scratch by the time of his second birthday.

The careful guardian of a child's health arranges for his protection against diphtheria by the time he is 8 months old. Diphtheria toxoid, prepared from chemically treated toxin, has largely replaced the toxin-antitoxin mixtures within the past half decade. It is generally administered in one, two or sometimes more injections, depending on the doctor's preference or judgment in these matters. No child can be called immune to diphtheria until his physician has performed the Schick test on him and pronounced it negative. This test is generally done from three to six months after the protective injections have been administered. If the Schick test is positive, the physician will repeat the injections until he is able to give assurance that the child is not susceptible to the disease. If diphtheria has already developed (and this would never happen in this country, if parents availed themselves of toxoid protection), the doctor administers the antitoxin as soon as the diagnosis is made. Here he is interested in developing a rapid passive immunity. The actual quantity injected will be determined by the severity of the disease in the specific case.

The breath-stealing spasms of whooping cough are being reduced by preventive treatment for this disease, which takes more infant lives than any other, a fact little appreciated by the laity in this country. More than 3,000 children under the age of 3 lose their lives each year as a result of the devastating effects of

Harold M. Lambert

By RALPH M. SUSSMAN

this disease. There are a number of vaccines being used at present, and accumulated experience has shown some to be superior to others. The vaccine developed at Northwestern University has given encouraging results, although not every child becomes immune following its administration. It is important to remember that a lapse of four months is necessary after injection, before complete immunity is achieved. According to published reports, about 80 per cent of the children injected with the proper quantity of this material will have complete immunity lasting for a period of seven years or more. Three or four visits to the doctor are sufficient to make a child reasonably proof against this most disturbing and prolonged illness.

The child who is already in the throes of whooping cough may be helped by vaccines, but no definite statement regarding the effectiveness of this method can be made at this time. Here the opinion and experience of the physician will decide the issue.

One of the "Must Get It" diseases, according to many mothers and grandmothers, is measles. While this is not axiomatic, it is almost true in urban communities. However, here too the doctor is equipped to lend his experience as the shield for the child's health by keeping the disease away during critical times or modifying

it to such an extent that most of the frightening symptoms and dangerous complications of the illness are absent.

Many methods are in vogue for preventing or modifying measles. The three most frequently used are first, the scheme employing human convalescent serum; second, that which makes use of human blood, and last, a method which has been used in recent years only; namely, injections of placental extract. The first method is perhaps the most convenient although all have been used with success. A mild reaction may follow the use of the one employing the extract of placenta or after-birth tissue, but the first two are rarely if ever accompanied by any reactions. For complete prevention of the disease early inoculation is imperative. When a modified form of the disease is the aim, the physician will decide when and how much to inject; but in any case the injection must be given during the incubation period before the seventh day after exposure to the disease. There is at present no convincing evidence that the use of any of these agents in a case of already developed measles is followed by a diminution in symptoms or complications. It is probably best to give children under the age of 5 years complete protection; whereas in those who have already reached this age, an attempt at modified measles should be made. The immunity following an attack of modified measles lasts as long as that which comes after fully developed untreated measles; yet in the former instance the child is not in danger of the disastrous complications of this communicable disease. Since the immunity following complete prevention of measles is a passive one, the patient enjoys it for only a short time, four weeks in most instances, so that if an epidemic is still raging, it is then necessary to inject him once again.

The disturbing and dramatic effects of scarlet fever may be lessened to a considerable degree by the timely use of serums. The human convalescent serum which is unassociated with any reaction is the one chosen in most cases, although antitoxic serums prepared from horse's blood are also used. There is good evidence that the severity of disease and the complications following it are considerably diminished by this valuable treatment. When a child who has been recently exposed is in need of immediate protection, a short passive immunity similar to that obtained in measles may be achieved by prompt injection of scarlet fever convalescent serum. The immunity which follows complete prevention of the disease with the latter method, as in the case of the measles, lasts only four weeks.

The problem of giving a child active immunity to scarlet fever is strictly one for the physician to decide. Some cities in the United States employ this method as a routine and report excellent results in the control of the disease in this way. There are many who decry its use because of the disconcerting reactions which sometimes occur following its introduction into the body.

The centuries have been kind to the child of today, for he may now be shielded from a host of maladies which took the lives of the brothers and sisters of his forebears. Diphtheria and smallpox should properly be ailments which history records but which doctors do not see. Whooping cough may be relegated to their class ere long. Measles and scarlet fever can be adequately checked in epidemic years by prompt medical action. In addition, there are scientific procedures for immunization against rabies or hydrophobia, typhoid and lockjaw, not to mention those ailments which arise from sensitivity to plant products, such as hay fever or ivy poisoning.

The most important weapon which parents have in the control of these distressing diseases of childhood is timely consultation with their physician, that modern St. George, who, with his Lilliputian lance, the injecting needle, is ever ready to slay the dragons of disease which hover about their homes.

Do You Know All the Answers?

(*If you don't, your children may suffer for it!*)

Can measles be prevented?
Is it true that all children must have measles and "the sooner, the better"?
Is measles a quarantinable disease?

Is scarlet fever preventable?
What is the Dick test?
What is the price of neglect of treatment?

What can be done to prevent whooping cough?
Is whooping cough contagious?
Can an early diagnosis be obtained?

The Lilliputian lance can help your child—can save him, possibly from disease, certainly from death through neglect; it is a two-edged weapon which deals death to disease, life to the child. It is ably wielded in the hands of your physician. Its place in the battle against the dangerous and distressing diseases of childhood is further outlined in the radio announcement on page 71, forecasting the broadcast of January 12. Further reference to its power will be found in the play, "Afternoon Study Club," which appears in this issue.

MODERN MEDICAL CHARLATANS

It has been said that a skeptic is not one who doubts, but one who examines. To those who are tempted by the wiles and wares of the charlatan the best advice that can be given is "Be skeptical!" A word to the wise

By MORRIS FISHBEIN

WHENEVER A NEW discovery is made in any field of science, an inspired charlatan appears promptly, ready to exploit that discovery for personal gain. The charlatan of an earlier day was limited in the number of people he could reach, because the radio, the newspaper syndicate and the other modern methods of exploitation had not yet been developed. Whereas the traveling quack of 1890 spoke to a few hundred people each night from the back of a wagon, the quack of 1937 speaks to millions over the air; not infrequently he employs a public relations counsel who procures for him feature articles in magazines with a circulation of millions, and newspaper feature services that have even greater distribution.

The records of the American Medical Association contain the names and the literature of some 300,000 charlatans, patent medicines and nostrums which have from time to time preyed on the American people. There is hardly a specialized field in medical science in which these charlatans have not appeared.

Quite recently the *Cosmopolitan* magazine has been publishing a series of articles by a novelist of advancing years who has selected some so-called "miracle men" whom he has chosen to exploit, presumably for the sensationalism in their stories. Some of those whom he has selected are insignificant practitioners of peculiar methods whose names would be without interest if he had not chosen to develop them. Others, however, have loomed large on the medical horizon in recent years.

Since it is obviously impossible to discuss all the charlatans in a single consideration, I have selected a few typical performers. A revelation of the evolution of their methods and of the background of their schemes should serve as a caution against the entire group that they represent.

Since the beginning of time there has been evidence of so-called healing by the laying on of hands. Every one knows that the power of suggestion is intensified by human contact. The salesman who is trying to put over a deal quite frequently approaches the person whom he would convince and puts his hands on the coat lapel or the shoulder. Any one can find out for himself how such human contact intensifies suggestion. The cold, experienced business man recognizes that type of approach and avoids it.

The chronic invalid, weak, despairing, eager for comfort, responds more readily to the laying on of hands. As a result, there are legends in every religious history not only of healing but of raising from the dead by such procedures. In ancient days, men were not sufficiently familiar with the scientific tests of death to ascertain with certainty that people in a comatose state were not actually dead but living. It is quite possible for the hysteric to imitate the signs of death. It is also quite possible by the power of suggestion to cause such a hysteric to discontinue the symptoms and apparently to rise from the dead. Nevertheless, we are not so much here concerned with Biblical miracles as with the fact that charlatans over the last two thousand years have imitated these performances.

Out of healing by the laying on of hands came the first practice of osteopathy and that malignant growth known as chiropractic, which was engrafted on osteopathy. The chiropractor diagnoses a dislocation of the spine that does not exist and heals the disease which he says is caused by that dislocation, simply by laying on of the hands to enhance the power of suggestion. Since D. D. Palmer, the apostle of chiropractic, first launched that peculiar method on the American people, it has failed to be accepted by the people of any other country. More than fifty years have passed, and yet in no other nation have the scientists or the people generally chosen to avail themselves of this superb American quackery.

Mahlon Locke

In the North American continent there have been innumerable imitations of chiropractic which from time to time have come on the scene and later disappeared. None of them achieved national importance, however, until

the extraordinary Canadian Mahlon Locke appeared on the horizon in Williamsburg, Ontario. His technic is not, of course, electrical or magnetic. He does not use colored lights or require the wearing of an iron ring. He is just a twister of toes, and this he does to cure rheumatism and difficulties related to the nervous system. Dr. Locke is unfortunately a graduate in medicine. After completing his work at Queens University Faculty of Medicine, Kingston, Ont., in 1905, he was licensed to practice in Ontario in 1906. He also qualified in Scotland in 1908 and became licentiate of the Royal College of Physicians, Edinburgh, the Royal College of Surgeons, Edinburgh, and the Royal Faculty of Physicians and Surgeons, Glasgow.

At first he was just a specialist in fallen arches. Then he was promoted as a skilful orthopedic surgeon. Finally, in August 1932, Mr. Rex Beach, under the title "The Pain Killer," gave him the send-off which brought him into national prominence as a healer. Now he treats from 300 to 1,000 people each day, making a flat charge of $1 a treatment. People who have suffered from rheumatic diseases and others with more serious conditions, such as the paralysis resulting from meningitis, infantile paralysis, multiple sclerosis and even locomotor ataxia and general paresis, come to Williamsburg for the peculiar form of laying on of hands in which he indulges. The patients form in lines like the spokes of a wheel, and he sits in a revolving chair in the center. As each patient comes to him, the patient puts his foot in the hands of Dr. Locke. The doctor twists the feet. Scientifically, he manipulates the first metatarsal, internal cuneiform and scaphoid bones of the feet, with the thumb of one hand against the head of the scaphoid, and the other hand holding the first metatarsal. Then each patient hands him a dollar, which he puts into his pocket. Just $1 from each patient, but when there are thousands of patients that runs into money.

From all our knowledge of the foot so far as concerns bones, muscles, ligaments, nerves and blood vessels, there is nothing to indicate that what Locke does in any way seriously affects the body as a whole or even the foot. Yet there are thousands of people with mild conditions of rheumatic character who are so anxious to get well that they feel better with every new treatment that is given to them. They are the ones who sound widely the fame of Mahlon Locke.

As a side line there is the Mahlon Locke shoe, promoted in various places by department stores and tied up with a promotional plan of extraordinary ingenuity. Apparently Locke sold his interest in the shoe business to an American shoe corporation. The exploitation of the shoes is tied up with the Locke publicity. The shoes are the kind that no one would wear unless they had been prescribed by a physician —not good looking—usually a half size longer and wider than the person has been used to wearing. Any one who has worn steadily shoes that are somewhat too tight knows the relief that comes when a bigger pair is substituted for them.

Dr. Locke is a member of the Canadian Medical Association. Some time ago there were hearings before the association concerning his status, but it was hard to prove that he was a quack because he makes no claims. He lets the patient make all the claims for him. If the patient is convinced in his own mind that Dr. Locke is marvelous, Dr. Locke is not going to say anything that would change the patient's mind.

Cancer Cures

Of all the ghouls who feed on the bodies of the dead and the dying, the cancer quacks are the most vicious and the most unprincipled. Notwithstanding the fact that we do not yet know the cause of cancer or any specific method of prevention and notwithstanding the fact that no drug, no serum, no vitamin, no vaccine and no electrical appliance has ever been established as having any virtue in the control of cancer, charlatans exploit all these methods from time to time and take from the dead and the dying the money that they ought to be applying toward securing increased years of life by suitable medical care.

The search for leaders in the field of cancer quackery narrows down promptly to two: William F. Koch of Detroit and Norman Baker, once of Muscatine, Iowa, and now operating near the Mexican border. The files of the Bureau of Investigation of the American Medical Association contain some interesting documents concerning these gentlemen. They contain also hundreds of letters from physicians and from the public generally asking about their methods, the products that they have for sale and the possibilities of getting back some of the money that has from time to time been spent with them.

William F. Koch was graduated in 1918 by the Detroit College of Medicine and Surgery. Previously he had been assistant in physiology and an instructor in histology in the University of Michigan Medical School. Less than a year after his graduation he announced that he had developed a real specific cure for cancer. At that time he thought that cancer was caused by a germ which resembled the spirochete of syphilis, and he had a synthetic antitoxin for it. He kept it all a secret.

From time to time, year after year, his claims were investigated and his patients were followed to find out what had become of them. Now twenty years have passed since William Koch appeared on the medical scene, and there is still not the slightest evidence that he has anything actually resembling a cure or even a beneficial treatment for cancer. Yet year after year he goes on and on, shifting his methods and obtaining new victims to help keep the wolf from his door.

Such tests as have been performed on his formula indicate that it is largely a powder consisting of a proteolytic enzyme like papain and sodium bicarbonate. However, Koch himself still keeps his formula a secret.

In 1936 he lost a malpractice suit, which had come up through court after court, in which the complaint was made that he had treated a patient for cancer who had not had a cancer, charging the patient $300 each for injections of the Koch cancer serum.

Then as late as last year, physicians throughout the country received pamphlets concerning the William F. Koch glyoxylide. The glyoxylide is just the same old Koch preparation, sold and promoted with a mass af pseudoscientific diction and now alleged to be useful not only in cancer but also in tuberculosis, psoriasis, leprosy, infantile paralysis and syphilis. In his literature, one reads of the reputed peregrinations of electrons in body processes, the alleged effects of mitogenetic and necrobiotic rays, oxidative processes unknown to biochemistry, an alleged relation of photochemical reactions to the effects of carcinogenic hydrocarbons and immune reactions completely foreign to modern immunology. Obviously the whole thing is complete nonsense.

The Koch cancer treatment is a highly commercialized nostrum now elaborated as a panacea. Most of the conditions described are chronic diseases involving great numbers of people, ever hopeful, and therefore fertile sources of income for all varieties of charlatans.

Not long ago it was revealed that William F. Koch while on a brief visit to Miami, Fla., had made contact with several wealthy citizens of New York City, and that they had promised to aid him financially in studying his cancer treatment and in disseminating it further around the United States. One of those alleged to have been helpful in this matter was the daughter of a wealthy industrialist, who himself is known for having contributed wisely to scientific research on scarlet fever.

Fortunately, the funds, which it was announced would be available, do not seem to have been used to much advantage in spreading still further the Koch quackery.

The story of the development of radio broadcasting in this country reveals as sad a spectacle as is to be found in all the applications of governmental control to any of the features of modern life, not excepting prohibition and Volsteadism. Legislation is constantly some twenty-five to fifty years behind the discoveries of modern science and their application in daily life. When commercial broadcasting was first launched on the air, radio loudspeakers spewed forth the very dregs of nostrum, patent medicine, real estate, blue sky stock and similar promotions.

In course of time the radio broadcasters themselves sickened at the filth that passed over the air. The association of broadcasters began to control, through their own organization, some of the material offered to them for dissemination. When the Federal Communications Commission was organized it found a chaotic situation. Numerous individual stations had been licensed, some wholly for commercial purposes. Other stations were controlled by great newspapers, by public utilities or by manufacturers of various products.

The legislation by which the Federal Communications Commission operated did not give it absolute powers. The commission does control the granting of licenses, and it can, for cause, revoke a license. In the meantime the radio industry found it expedient to organize great chains, which really dominate the air during the periods they are in operation. It is difficult for individual stations to make themselves heard at the same time; even more important, however, the class of material offered over the chain is far superior in most instances because of the higher prices paid for entertainment and educational features. Thus only a limited number of people are likely to listen to features developed locally. Today most of the material coming into the home over the air is fairly sound from the point of view of truth, fairly safe from the point of view of preventing harm to the listener through trusting his health or his money or even his soul to some blue sky promotion in any of these fields, fairly nice from the point of view of morals and fairly esthetic from the point of view of entertainment.

Norman Baker

In a few spots over the United States, around 1925 to 1930, local stations continued to pour forth filth and falsehood. In the obscure Kansas village of Milford, a blatant quack, one John R. Brinkley, whose professional record reeks with charlatanism of the crudest type, had for some years been demonstrating the commercial possibilities of goat-gland grafting for alleged sexual rejuvenation.

In Iowa at Muscatine, over Station KTNT, there broadcast a business man named Baker. Baker's original enterprises were wholly in the commercial field. He sold cigars, radios, storage batteries and alarm *(Continued on page 88)*

Parents Call It MULISHNESS

But it is just a necessary and natural part of "the difficult business of growing up," says

FRANK HOWARD RICHARDSON

ONE OF America's great humorists, who was incidentally one of our most profound philosophers, never uttered a truer saying than his famous paradox: "The trouble with so many of the things we know is that they just ain't so!" And that is exactly what is the matter with much of our "knowledge" of the principles underlying the bringing up of children. It isn't so, especially when it refers to the workings of the minds of children who are passing through the baffling stage of adolescence.

There is the whole question of obedience, which is perhaps the most troublesome of all the problems that beset parents. We have been told since time began, it seems, that the way to secure unquestioning obedience and perfect discipline was to teach the child from his earliest years that he must always do exactly as he was commanded to do. "Train up a child in the way he should go; and when he is old, he will not depart from it," was given to parents as profound pedagogy and the wisdom of the ages.

Now this would be fine, if it were not for the baffling fact that adolescence comes in to break up the logical sequence of events. And the wise ones overlooked one of the outstanding characteristics of adolescence. The scientists call it by a high-sounding title, negativism; but to the parents and teachers who are confronted with it, it is just plain mulishness!

Irritating and unaccountable as it may be, negativism is an almost unfailing characteristic of adolescence and rarely fails to appear at some time during these turbulent years. And upsetting as it may be to adult ideas of child training and the development of obedience, it undoubtedly serves a useful purpose in aiding the growing child to attain the status of an independent thinking unit of society.

Many a time and oft I have been assured by the proud parent of a child of 3, 5, 7 or even 9 years that discipline presented no terrors for him, because he had started right in at the beginning and had allowed no exceptions to his demands for unquestioning obedience. He always expected nothing less, and that was exactly what he got. His child never thought of questioning the father's decisions or his authority. Parenthood was as simple as that!

Talk with this parent a few years later, after adolescence has had a chance to appear on the scene, and you will find a man who is hopelessly baffled, completely at sea, helpless before a

THE CHILD WHO HAS BEEN NAGGED AT FOR DOING THINGS THAT ARE IN THEMSELVES HARMLESS NEVER HAS A CHANCE TO LEARN HIS OWN LIMITATIONS.

THE WISE MOTHER LETS THE LITTLE TOT MAKE HER DECISION.

situation for which he has made no provision. He will tell you that the system was working beautifully, but that suddenly a wrench was thrown into the well oiled machinery of the home. One day, out of a clear sky and apparently for no reason at all, his hitherto obedient child unaccountably turned "mulish" and defied him utterly and openly!

Greatly surprised at this flaw in his scheme of things he first tried reasoning—and got nowhere at all with it. For while the adolescent is keenly logical and follows the thread of an argument closely, he is bound by logic only when its conclusions are to his advantage! The moment it shows any signs of veering to his parents' side he will have none of it. Instead, this maddening trait, negativism, appears on the scene, and calm reasoning is replaced by acrimonious debate in which the parent is likely to come out second best.

This aggravating trait of negativism plays a vital rôle in the development of the dependent child into the independent adult.

We say that a child is well disciplined when he obeys his elders—any elder, whether it be his parent, his teacher or even a casual stranger. Normally, we expect the child to be docile and pliant to the will of any older person. Just the opposite is true in the case of the adult. We say that *he* is well disciplined, only if he has a mind and a will of his own that *refuse* to yield direction to any chance stranger.

How is this fundamental change to take place? Only by the occurrence of a period of transition, during which the child can shuffle off this habit of unquestioning obedience to every adult and develop a will of his own. For this purpose, negativism is indispensable. To be sure, this trait may sometimes seem to be overplaying its part when it causes the adolescent to persist in a course that seems diametrically opposed to what is plainly for his own good; but without it he would never gain the independence so necessary for emotional maturity.

But how are the parent and the teacher to deal with negativism, when it stands directly in the way of compliance with the demands of authority? Are they to give in to it and allow the child to have his own way, as he desires?

Many parents are disguising their weakness and lack of determination by complaining of the wildness of the younger generation or hiding behind their fear of "breaking the spirit" of the young rebels. Some parents are frankly cowed by the defiance of their boys and girls of high school or early college age and are only too ready to trump up any excuse that furnishes them with a halfway respectable "out" from an unpleasant situation. Negativism and its disagreeable corollaries, insubordination and frank disobedience, have them beaten; and their adolescent children swell the ranks of those who are flunked out of college, marry without prospect of support and add to our lists of drunken drivers and irresponsible and undesirable citizens.

But negativism need not lead to such undesirable end-products. It is only when it is improperly dealt with during the early years of childhood and adolescence that such tragedies spring from it. We are living in the day of preventive treatment, and a reasonable understanding of the adolescent and his ways of thinking and feeling should enable parents to prevent such unhappy endings. But the time to deal with negativism is at its very start, or even long before that, while the child is still in the suggestible stage and has not yet begun to suffer from the overplus of negativism that is normal as the changes that come with puberty commence to appear.

The wise parent will begin to allow his very young child to decide things for himself, whenever this is possible. To be sure, these choices may seem few at first; but with an eye to the difficult days ahead, it will be found that opportunities for making small decisions are constantly coming up. The parent who is constantly meeting the wishes of his child with baffling and unnecessary "don'ts" and who insists on deciding every little thing that arises is the one who finds the rebellious negativism of oncoming adolescence so trying and so overwhelming.

But, the mystified parent may ask, what decisions can be left to my 3 or 4 year old child? They are legion. What dress to put on, what picture book to look at or in what drawer to put away a toy seem little enough; yet it is surprising how unwilling many mothers are to allow even these early unimportant choices to be made. Still more unwilling are many busy mothers "to waste the time," as they express it, necessary in order to allow the blundering little one to put on his own socks, button his little garments or—worst and most maddening of all—begin to learn to tie his own shoe laces. Thoughtless of the eventual saving of time and quite regardless of the child's own development, they impatiently snatch away the tiny task that means so much to the child

and then, later on, are highly indignant that he hangs back and refuses to do the dressing that was once so fascinating a performance.

This does not mean, of course, that a child should be allowed to dawdle, come late to meals, leave his toys where they happen to drop or make decisions that involve danger or destruction to himself or to his possessions. For even with all these unimportant points conceded, there will always be plenty of decisions that the child cannot be allowed to make. Strange as it may seem, however, the little one who has been permitted to work out the little things for himself is much more willing to submit to his parents in the big essentials than is the one who has been thwarted at every turn, as so many children are. Mothers who invite rebellion, by their constant refusal to allow their children to do things that are quite harmless in themselves, are only too soon confronted with the necessity of dealing with organized revolution in the family.

But does not the child soon get into the way of insisting on making all decisions for himself, when once he has tasted the sweets of deciding the less important things? Strangely enough, he doesn't. Children have a surprising realization of their own limitations, if we will but allow them to exercise this knowledge.

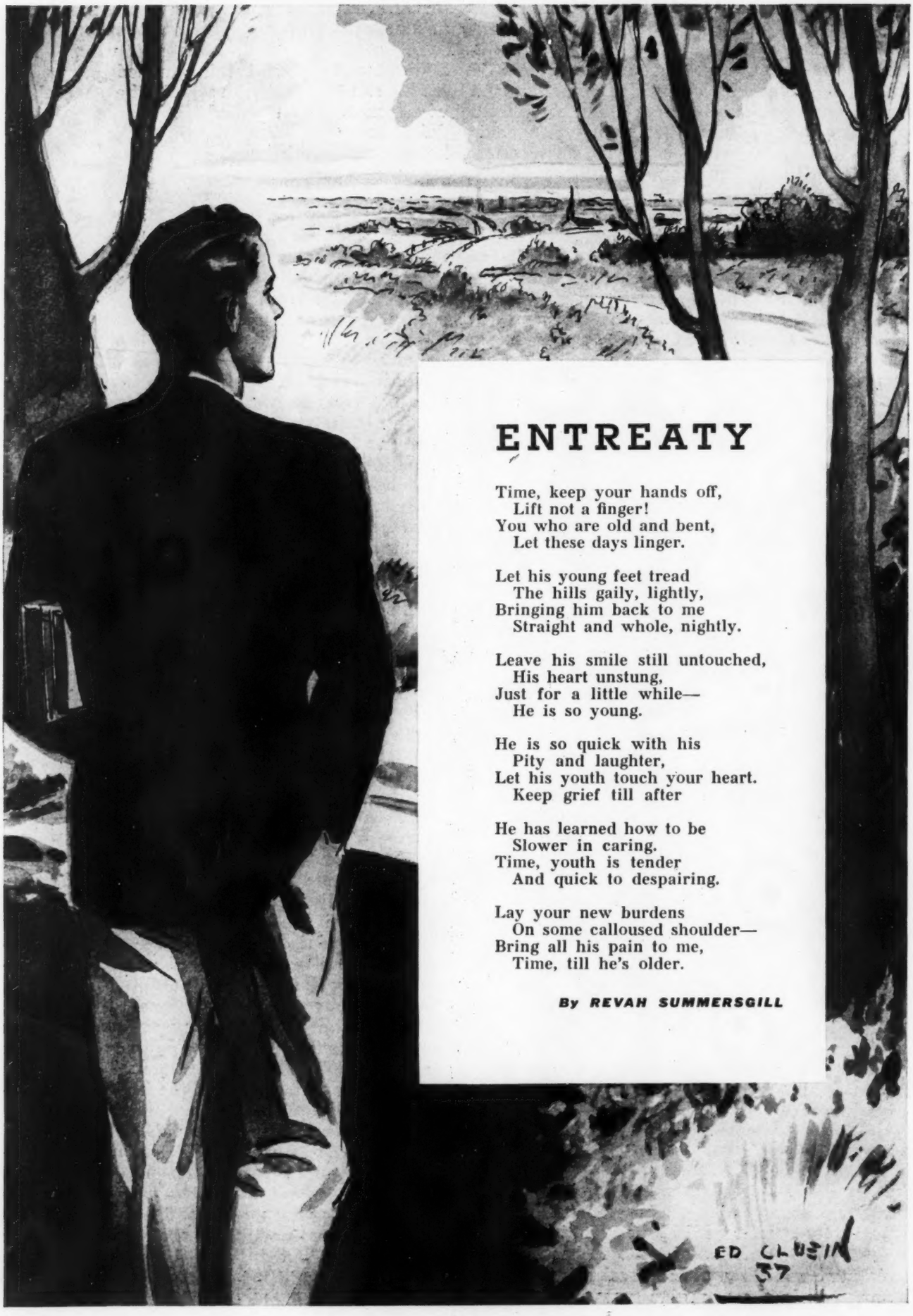
UNHAPPY THE CHILD WHO CANNOT SAY "NO" TO OTHERS' SUGGESTIONS.

This can frequently be seen in the small child whose mother is terrified lest he hurt himself doing some athletic stunt that she considers beyond his powers and dangerous for him to attempt. Just so long as she forcibly detains him, he is wild to make the attempt. Let her calmly turn her back on him, and it is surprising how his ardor cools! To be sure, he may make mistakes in his inexperience and may underestimate danger, especially some outside peril like that from traffic or fire; but he has a shrewd knowledge of what he can and what he cannot do.

The child who has been forbidden to try even the things that are well within his powers or who has been nagged at for doing things that are in themselves harmless never has an opportunity to learn his own limitations. When he reaches adolescence he has not the saving knowledge of what he cannot do and assumes that since so many of the things his parents have been forbidding are quite harmless, the remainder probably are equally so. He has learned to distrust, rather than to have confidence in, the wisdom of adults, and so he relies on his own inexperience. None of us is wise enough to dispense with the knowledge gleaned by those who have been through the things we are tempted to try. The fool learns only by his own experiences; the wise man learns by some one else's!

The child whose negativism is not constantly aroused to combat unnecessary parental opposition has still plenty of legitimate employment for this trait, which is valuable in its place and when properly employed. As the adolescent goes out from his home, he is constantly being confronted with suggestions which it is most desirable that he resist. Some of them come from his fellows, of both sexes; some from adults, who ignorantly or selfishly try to exploit his inexperience. Negativism is here a conservative and protective device, not the disruptive element that we have found it when it runs roughshod over the restrictions of the home. Unhappy indeed is the boy or girl who has never learned to turn a deaf ear or utter a decided "No" to the suggestions of others.

Negativism, like most of the other characteristics of adolescence, is not all bad by any means. Misunderstood, it can be one of the most powerful forces for ill. Properly understood and guided, it can accomplish wonders for the adolescent who is fortunate enough to have parents who understand him and sympathize intelligently with him as he passes through this difficult but indispensable phase in his development, which has been aptly styled "the difficult business of growing up."



ENTREATY

Time, keep your hands off,
  Lift not a finger!
You who are old and bent,
  Let these days linger.

Let his young feet tread
  The hills gaily, lightly,
Bringing him back to me
  Straight and whole, nightly.

Leave his smile still untouched,
  His heart unstung,
Just for a little while—
  He is so young.

He is so quick with his
  Pity and laughter,
Let his youth touch your heart.
  Keep grief till after

He has learned how to be
  Slower in caring.
Time, youth is tender
  And quick to despairing.

Lay your new burdens
  On some calloused shoulder—
Bring all his pain to me,
  Time, till he's older.

By ***REVAH SUMMERSGILL***

SKIING

Part 1

MISHAPS AND HOW TO MEET THEM

By Charles C. Lund

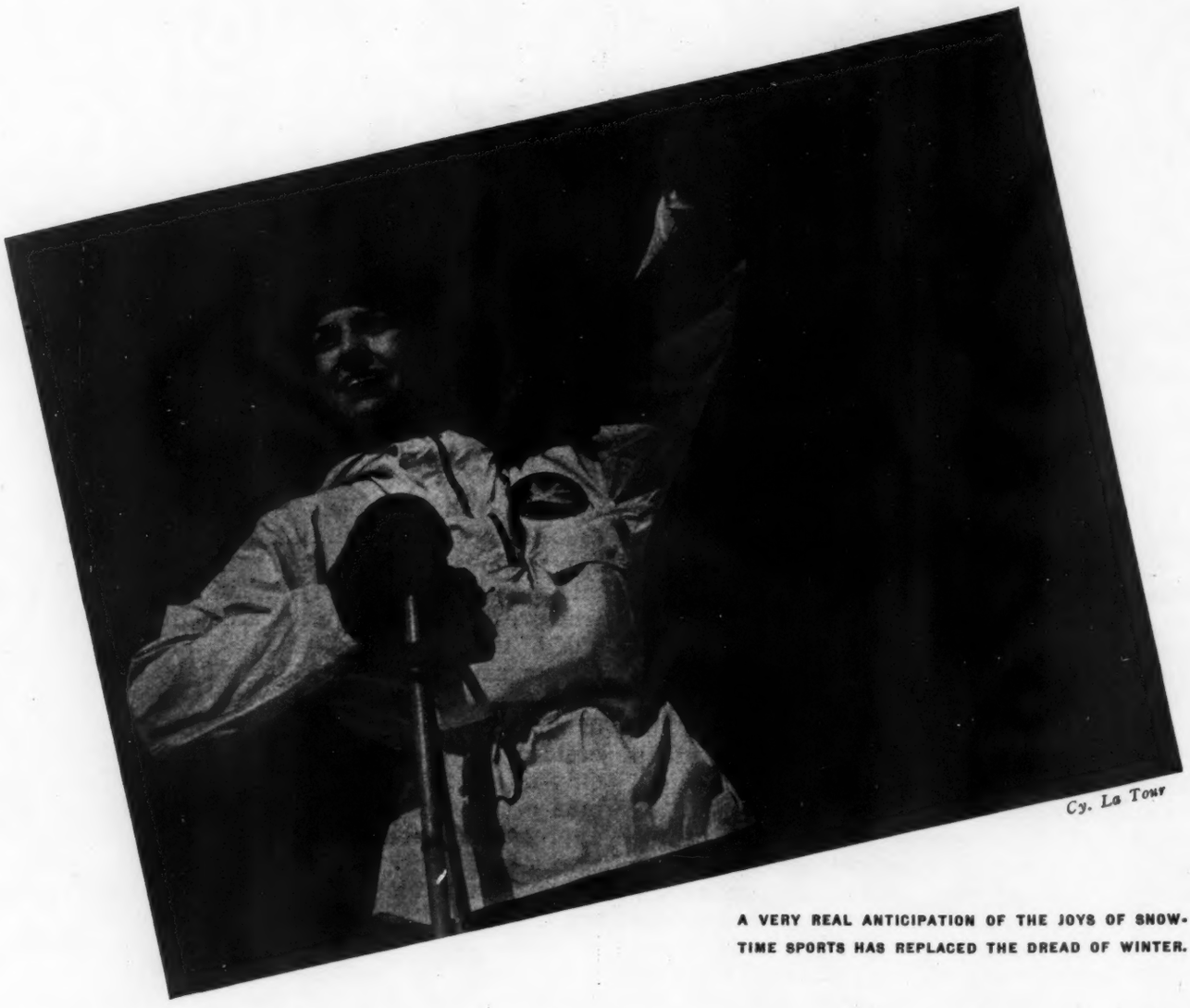
WHEN OUR ANCESTORS first settled the northern parts of the United States the long, cold winters were dreaded. We too would dread them if we had to put up with the inefficiently heated houses and restricted diets which were prevalent then. As time went on and the country became more settled, means of travel became better and increasing numbers of outdoor recreational activities began in the winter. Both skating and horse racing with sleighs became popular with adults, as did coasting on sleds with children.

In the 1890's, increasing numbers of people began to take snow-shoe excursions as a winter sport; thus their eyes became opened to the beauties and pleasures of the woods and mountains in the winter. At the same time a few hardy individuals, mostly of Scandinavian descent, widely scattered over the country, began to ski. In the early years of this century a few other young people also took up skiing. But for the city dweller a skiing trip usually meant a train ride of some hours plus transportation to a hotel by sleigh or sled, so the trip was not worth while unless several days could be spent on vacation. But in the 1920's it was found that roads, even in the mountains, could be kept open all winter. So the skiing boom began. This is no local phenomenon; it is world wide. Active ski clubs are located in such unlikely places as Africa, India and Australia and even in Hawaii. These are not just clubs of old-time skiers formed for purposes of reminiscence or to take trips to distant parts but of skiers who ski on snow in their own country. There are so many skiers now that there is a definite world-wide shortage of good seasoned hickory with which to make the best skis. Instead of the old, nearly universal dread of the winter, there is now among large groups of people a very real anticipation of the pleasures of winter sports.

Many persons consider skiing a dangerous sport. What sport worth doing does not have some element of danger? However, no skier will admit that the dangers in any way balance the pleasure and exhilaration of the sport. Just how serious are these dangers? Sprains and minor fractures are fairly common, but serious fractures or fatal injuries are rare. At least half of the serious accidents are only indirectly due to skiing; more are caused by accidents, such as avalanches, that arise from the risks of mountaineering. Such accidents are rare in eastern United States and Canada, as there is only one limited area, the Cone and Tuckerman's Ravine on Mount Washington, where any appreciable amount of skiing is done on steep slopes subject to such dangers. In the higher western mountains and in Switzerland the proportion and actual number of such accidents is greater. Those who expect to ski above the tree line on any mountain should study these dangers. The best book on the subject of avalanches is Gerald Seligman's "Snow Structure and Ski Fields."

The ordinary hazards of skiing have recently been studied by a committee sponsored by the Amateur Ski Club of New York. Their report, which was published in the 1936 American Ski Annual, may also be obtained in pamphlet form on written request. They have shown that too much speed resulting in loss of control is much the most important cause of injury. Contributory causes are poor physical condition and, rarely, poor equipment. A person of reasonably athletic physique who does not take undue chances is relatively safe as far as important injuries are concerned. Given good condition, age is no bar to learning or to enjoying skiing. Two Boston doctors have recently learned how to ski at the age of 60, and they not only enjoy it but ski so competently that they put most younger skiers to shame. However, above the age of 40 this sport is only to be considered safe by a man who is used to moderate exercise and whose health has been pronounced good after a physical examination.

Injuries to skiers may bring up unusual first aid problems because an accident may happen



A VERY REAL ANTICIPATION OF THE JOYS OF SNOW-TIME SPORTS HAS REPLACED THE DREAD OF WINTER.

at some distance from a road and the weather may be quite severe. However, the peculiar characteristics of skiers' equipment lend themselves to remarkably efficient handling of the injured person if certain principles of first aid are known. If each skier carries the following short list of simple supplies, good first aid equipment can be improvised easily: a knife, six large safety pins, ten feet of cord, three squares of surgical gauze and one 3-inch elastic weave bandage. With these and skis, poles, sealskins and clothing a party of four can make a toboggan for one of their group who is hurt and can splint and move him down an average trail. In deep snow or in rough country more help may be needed merely to push and pull.

Following an accident the first essential is a diagnosis of the patient's injury and of the situation. This should be thought out carefully. The person best informed in first aid should take charge and examine the patient to make the best possible rapid diagnosis.

Do not undress the patient, even in part, unless there is evidence of a wound. If there is one, *cut* away enough clothes to expose it. In other injuries, look first to see whether the arm or leg is deformed or shortened. If so, it is probably broken, or there may be a dislocation of a joint. If the patient can move the limb well without great increase in pain, there is probably no serious fracture. If he is unconscious, he probably has a concussion or a fractured skull. With severe abdominal pain he may have an internal injury. If he has severe chest pain, he will probably have fractured ribs, especially when the pain is increased by deep breathing. If he has severe pain in the back or neck, the spine may be fractured. When an injury is in the neighborhood of a joint the pain is apt to be excruciating at first, even with a sprain. In a minor injury the initial pain will wear off rapidly and may become comparatively slight after five or ten minutes. Shock will be recognized by weakness, a rapid pulse, cold sweat and sometimes vomiting. At first it will not be of serious degree except in multiple fractures, rapid hemorrhage or serious internal, head or chest injuries.

Patients with fractured legs, dislocated knees or ankles, fractured spines, concussion, severe

chest injuries or internal injuries will have to be taken out on a toboggan or an improvised toboggan. This will require at least three persons to manage except under the easiest conditions. With certain snow conditions and locations the patient will have to be carried on a litter. Six persons, or better twelve, are needed if the distance is more than a few hundred yards. The diagnosis should not be done too hastily but should not take more than five minutes. The best skier, unless he is also the best first aid man should then depart to get necessary help. Do not send people any distance to pull a toboggan uphill. It takes three or four men to pull it uphill at a rate of about one mile an hour. It is much better to make a toboggan as illustrated. This can be done in less than ten minutes if the following method is known.

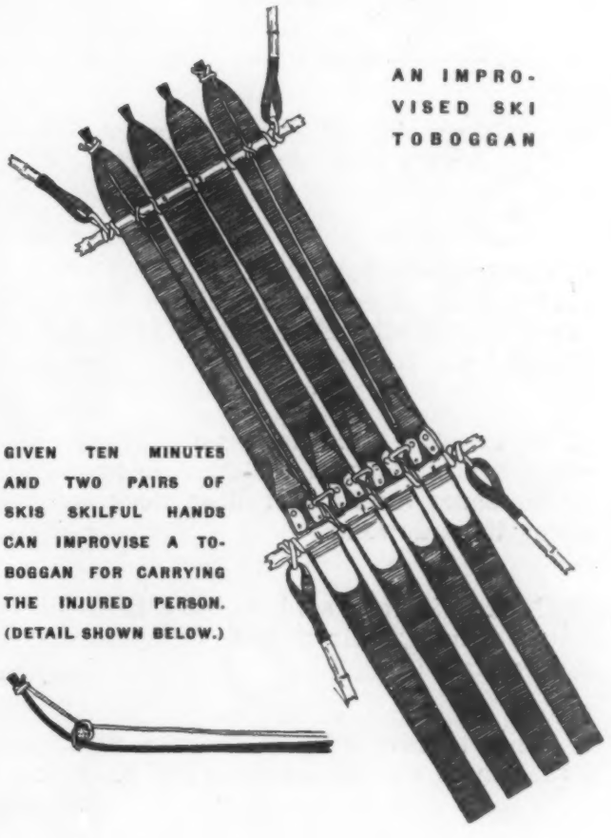
Take the two pairs of available skis that are most nearly the same length. Break one ski pole into two pieces so that each piece is from 4 to 6 inches longer than the width of the four skis when placed closely beside each other. (Break the injured man's pole, not your own.) Lash the skis to the poles as illustrated. A cord is tied to one end of the broken pole and lashed under each ski and over the pole between the skis and is then tied to the other end. If skis with cable type bindings are used, it should be possible to avoid any cord under the skis in attaching the posterior, or back, pole by fastening the cord to the clips on the sides of the skis. If rope under the skis can be avoided at this point, a more easily controlled toboggan will result. The posterior pole is placed tightly against the back of each toe iron. Then, with three 6-inch pieces of shoelace (from the injured man) each adjacent toe iron is tied to its neighbor and to the pole. Two more lengths of cord run from the inside iron of each outside ski to the front piece of ski pole, where they are knotted firmly. The same cords are then tied tightly around the ski tip. Other cord if available will make the toboggan much more stable, if fastened in a cross from each end of one cross piece to the opposite ends of the other. The handle loops of four unbroken ski poles are then tied to the end of each pole lashing. These poles may be replaced by sealskins; but if there is a shortage of material, sealskins are useful for tying the patient to the toboggan.

The condition demanding most urgent relief is severe arterial hemorrhage, which is rare in skiing accidents. If a large stream of bright crimson blood is pumping out of a wound in the arm or leg, a tourniquet should be applied above the wound and twisted up until the blood stops. This is in itself a dangerous procedure and should not be used unless the patient appears to be in danger of his life. If a tourniquet is left on more than half an hour, there is danger of losing the limb; if left on over an hour, this danger becomes almost a certainty. A tourniquet should be applied over a rolled-up shirt, which will protect the skin. A belt or strong cord should be tied loosely around the padding and then tightened by using a ski pole as a windlass. Practice this in advance under a doctor's eye, and get further instructions as to details from him, as great damage can be done by misapplied zeal in this direction. This and all other wounds should have sterile gauze placed on and in the wound and a firm bandage put over it. If sterile gauze is not available, the cleanest *cotton* clothing should be used. Used handkerchiefs are the dirtiest material you are apt to have about.

If a wound is over a fracture, do not attempt to clean it. Cover it up with a firm dressing and handle the fracture as if there were no wound. If a bone is sticking out, do not try to replace it. Again, as previously described, dress it and splint the fracture. Notice that no mention is made of antiseptics. They cannot do any good under first aid conditions on the ski trail and therefore should be forgotten. Sterilization of the wound will be attended to by the doctor at the hospital.

The kind of shock that is caused by accidents is a condition of extreme muscular and general weakness. It is caused by one or more of the following factors: loss of blood, exhaustion, severe pain, damaged tissues and cold.

Combat shock by keeping the patient as warm as possible and by avoiding all possible pain. Put twice as many clothes and blankets under



AN IMPROVISED SKI TOBOGGAN

GIVEN TEN MINUTES AND TWO PAIRS OF SKIS SKILFUL HANDS CAN IMPROVISE A TOBOGGAN FOR CARRYING THE INJURED PERSON. (DETAIL SHOWN BELOW.)

the patient as over him. You cannot use too many! It is worth spending several minutes wrapping the patient efficiently. In exposed positions during very cold weather it is sometimes important to bury the patient in the snow, if there has to be a wait for help. At other times a fire or careful covering with hemlock boughs will make up to some extent for scanty clothing. The avoidance of pain is attained by proper splinting and other supports and by gentle handling. Under no conditions give liquor, as this appreciably speeds up cooling. Unconscious patients, those with internal injuries and severe chest injuries and those who are nauseated must be given nothing by mouth. Others may be given water, tea, coffee, cocoa or soup, preferably hot; but the good from these is minor, and no time that can otherwise be used should be spent in getting them. Cold is a great promoter of shock. The injured skier cools off rapidly. For this reason first aid must be rapid and efficient to be of value. Even if the day is warm for skiing, a person with only ordinary ski clothes can become seriously chilled in two hours. The use of morphine or codeine in first aid cannot be recommended to other than doctors. The balance between good and harm from their use under first aid conditions is so delicate that simple directions cannot be given to make their use safe.

To a large extent freezing toes, ears and other parts can be avoided by proper clothing. No clothing should be too tight. Tightness is especially dangerous to the feet, as the foot or toes are more likely to be seriously frozen without knowledge than other parts of the body. The secret of good first aid for freezing is to thaw the frozen part *slowly*. In some cases this can be done outdoors by adding more clothes. *Never rub with snow; never use warm water or direct heat from a fire or radiator.* Gentle rubbing of painfully frozen hands or feet with very soft, dry fur will probably give maximum relief from pain.

[NOTE.—In the February issue, Dr. Lund will discuss first aid for fractures and sprains.]

HEALTHGRAMS — *FROM ARTICLES IN THIS ISSUE*

¶Constructive play calls for ingenuity, the ability to create, a selection of materials and real thinking along with exercise that makes for physical development. *See page 42*

¶Gentle rubbing of painfully frozen hands or feet with very soft dry fur will probably give maximum relief from the pain of frostbite. *See page 29*

¶The aggravating trait of negativism, or mulishness, plays a vital role in the development of the dependent child into the independent adult. *See page 25*

¶The crippled child desires and plays with the same toys as normal children do and delights in the same variety of rolling stock daily seen along the sidewalks. *See page 52*

¶The tropics are said to have been the first home of man, their warmth being necessary to his existence. *See page 45*

¶Home accidents result from a personalized equation of mischief-making and stupidity. *See page 11*

¶While this age seemingly values human life very little, certainly no more than the preceding ages of human history, physicians instinctively have a different principle, and they work tirelessly to save those whom a previous generation believed hopeless and incurable. *See page 33*

¶Today, air conditioning may be defined as the simultaneous control of temperature, humidity, air motion, cleansing and air distribution within an enclosure. *See page 40*

¶Many of the serious accidents in homes are due to poor lighting, and these accidents are needless and can be readily avoided by careful thought to the lighting plan. *See page 55*

¶The centuries have been kind to the child of today, for he may now be shielded from a host of maladies which took the lives of the brothers and sisters of his forebears. *See page 18*

¶The common cold is contracted through the nose and throat, but healthy individuals have a natural barrier to the cold germs if they keep their general physical condition above par. *See page 15*

X-RAYS
and Radium in Medicine

***HARRY H. BOWING** and **ROBERT E. FRICKE** contribute the third article in a series on the value of these therapeutic aids to public health and the practice of medicine*

THE ROLE of radium in modern medicine is linked with two phenomena worth mentioning: One is the coincidence that at the time medicine was lengthening human life and enabling more people to attain the age when degenerative disease and malignant changes appeared, the outstanding work of the Curies in France furnished mankind with the new and exceedingly powerful element, radium, which was destined to play such a considerable part in the treatment of cancer. The second phenomenon is that in a world which is so intensely nationalistic, divided as it is into armed camps which are distrustful and suspicious of each other, science is and always has been international. The brilliant work of the Curies and the remarkable discovery of the x-rays by the German physicist Wilhelm Konrad Roentgen were carried to completion and given freely to the world without thought of patent or royalties or of individual or national profit. Hence the more effective methods of combating cancer and subsequent advancements in the technic of its treatment were given to the physicians of every country, being quickly and widely disseminated in scientific publications.

Almost immediately following the discovery of radium came the observation that the rays emanating from this element performed work at a distance and would show effects on the skin and other parts through the clothing. In the early years of the present century, radium was tentatively applied to surfaces and open wounds, and striking healing effects were noted. About 1910 the brilliant work of Dominici in France, whereby the more irritating rays were screened out by enclosing radium in filters of heavy metal, opened a new realm in treatment. The more penetrating rays which passed through these metal filters were able to heal disease deep in the interior of the body without harming the superficial tissues.

From earliest times, cancer has been one of the major problems of mankind. Because of the increasing percentage of old people in every country today, degenerative disorders and cancer are the major causes of death. Statistics for the year 1934, for example, show 1,396,903 deaths in the United States, and of this number, 134,428 persons died of cancer, or nearly 1 in every 10. In 1900, cancer occupied tenth place in the mortality tables; today it has risen nearly to the top, being second only to heart disease.

For centuries, scientists have devoted their lives to seeking the cause of cancer. A great deal has been learned, but not the basic cause or the combination of factors that produces cancer. The principles of treatment have changed to some extent. In the absence of a known simple basic cause of malignancy, treatment is directed to removal of cancerous tissue as soon as it is discovered or to its destruction in the body in cases in which the growth cannot be removed. The cruder surgery of the last century was supplemented by cauterization, or burning with caustics and corrosive substances, of the inoperable growth. Since the beginning of this century, however, surgery has progressed to a much higher level of efficiency, and surgical treatment is supplemented by irradiation of the growth by means of radium or the x-rays. Irradiation in many cases kills the cancer cells in the body, and there is much evidence to indicate that it simultaneously stimulates the defense mechanism of the individual so treated. Five year, ten year and even longer "cures" have multiplied beyond the fondest hope of a generation ago.

In discussing cancer, the word "cure" is modified always by time. It is impossible to claim certain cure of a disease whose true cause or combination of causes is still unknown. When the physician speaks of a "five year" or "ten year cure" he means that the patient has remained apparently perfectly well without any discoverable growth for that length of time.

Wide surgical excision alone or irradiation alone, or a combination of the two, is usually successful in treating a cancer which is discovered early and has not spread to other parts of the body. If the growth has invaded distant organs radical surgery is useless, and irradiation by radium or x-rays and, in selected cases,

BECAUSE THE GAMMA RAYS EMITTED BY RADIUM ARE HIGHLY PENETRATING, THIS "RADIUM GUN" HAS A SIX-INCH LEAD WALL.

palliative surgery are valuable in easing pain, stopping discharges and hemorrhage and in prolonging life in comfort.

Cooperation is the keystone of the arch in the treatment of cancer. Operation and irradiation are not antagonistic but mutually helpful. A skilful surgeon may unaided bring about a successful result in many early cases, and similarly a careful radiologist may arrest the growth in many cases and achieve palliation in the case of advanced lesions. By working together, and especially with the aid of a skilled pathologist, even better results will be secured. Microscopic study of malignant tissue usually indicates the true nature of the growth. Certain cancers grow faster than others and tend to spread earlier to other parts of the body. In many instances also microscopic examination predicts the degree of sensitivity of the growth to irradiation.

Similarly, radium and the x-rays have a complementary function in the treatment of many conditions. The gamma rays emitted spontaneously by radium are highly penetrating and are able to pass through many inches of solid lead. These rays are especially fatal to cancer cells and at higher dosages to the cells of other tissues as well. The x-rays used in treatment are of longer wavelengths and are not so penetrating; otherwise, they are similar in nature to the gamma rays of radium. The usual x-ray apparatus used in this country for treating malignant conditions functions at 200,000 volts. Gamma rays can be produced at from 2 million to 3 million volts. Several institutions have already installed machines, operating at 1 million volts, which give off rays approaching those given off by radium.

In treatment, x-rays cover a larger area of the body. Radium can be applied locally, directly against a growth or buried into it. Hence the two agents are effectively used together, radium being applied locally and x-rays being applied over the surrounding lymph-bearing areas.

Radium is used successfully in the treatment of many benign tumors and of acute and chronic inflammatory conditions. This fact is not generally appreciated by patients. If a friend is known to be taking radium treatments, he is suspected of having cancer. This is entirely erroneous for in most radiologic clinics fully a third of the patients who are receiving treatment do not have malignant disease.

Cancer, however, is always more dramatic than benign disease, and it is dreaded by every one who reaches middle life. How can the average person of mature age protect himself?

If cancer is discovered early, before it has spread throughout the body, it can often be wholly conquered by the surgeon and the radi-

ologist. The presence of any sore which refuses to heal after recognized methods of treatment, of any persistent painless lump or swelling, of any discharge or bleeding, no matter how simple or slight, or of any indigestion and pain of long standing should lead the sufferer to his family physician without a moment's delay. Delay caused by a dread of cancer or a hopeless attitude which induces the patient to conceal his disability is fatal. The first step is immediate examination by a competent physician to determine whether or not the lesion is cancer.

Treatment by irradiation and surgery is often tedious and difficult and demands great skill and experience as well as the best efforts of the physician. Each patient presents an individual problem and demands the most minute care and almost constant attention. There is no "short cut" that may be taken in the treatment of these patients.

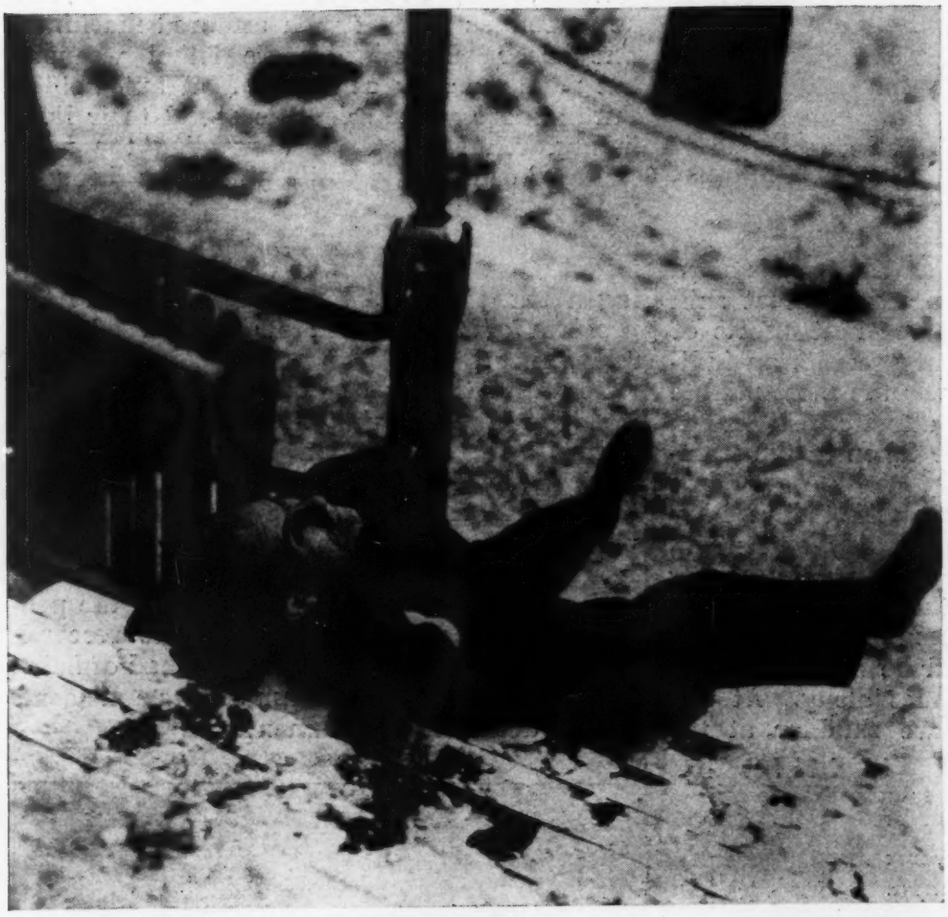
But how important is human life today? Physicians may work for weeks, day and night, fighting to save the life threatened by cancer and finally succeeding in their efforts. Yet on dismissing this salvaged human being they may see him cross a street and be broken in two by the first truck that comes along. At this stage in our civilization we shudder at the disregard of life shown in the middle ages, when men encased themselves in armor and rode forth eager to kill any who would dispute the road with them. This armor was uncomfortable, and man now wears soft clothing; but he surrounds himself with armored machines. The spear and sword were lethal weapons but not as deadly as the modern automobile. Furthermore while scientists spend their lives in research laboratories unraveling the mysteries of cancer and while physicians throughout the world devote all their energies to treating its unfortunate victims, so-called civilized nations are arming to the teeth and devoting a tremendous amount of research to the problem of the wholesale slaughter of their fellow men.

So while this age seemingly values human life very little, certainly no more than the preceding ages of human history, physicians instinctively have a different principle, and they work tirelessly to save those whom a previous generation believed hopeless and incurable. It may be foolish optimism, but let us hope that the day will come when the people's savings will be contributed to research toward the conquest of disease instead of being spent on the latest types of machines and agents for the destruction of human lives.

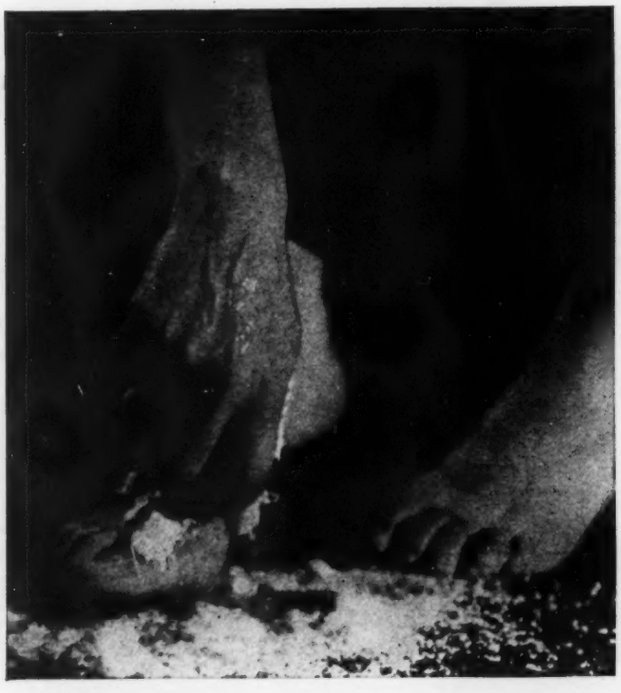
RADIUM IS USED IN THE TREATMENT OF MANY BENIGN TUMORS AND OF ACUTE AND CHRONIC INFLAMMATORY CONDITIONS.

Acme

WINTER HEALTH



NOW IN WINTER come icy steps and slippery walks. A fall for an older man or woman may mean a fracture that is fatal. Sometimes months or years of invalidism ensue. And the prevention: just ashes or sand, snow swept away, ice removed, and always a handrail or a rope for the hand to hold until the bottom is reached.



Stephen Deutch

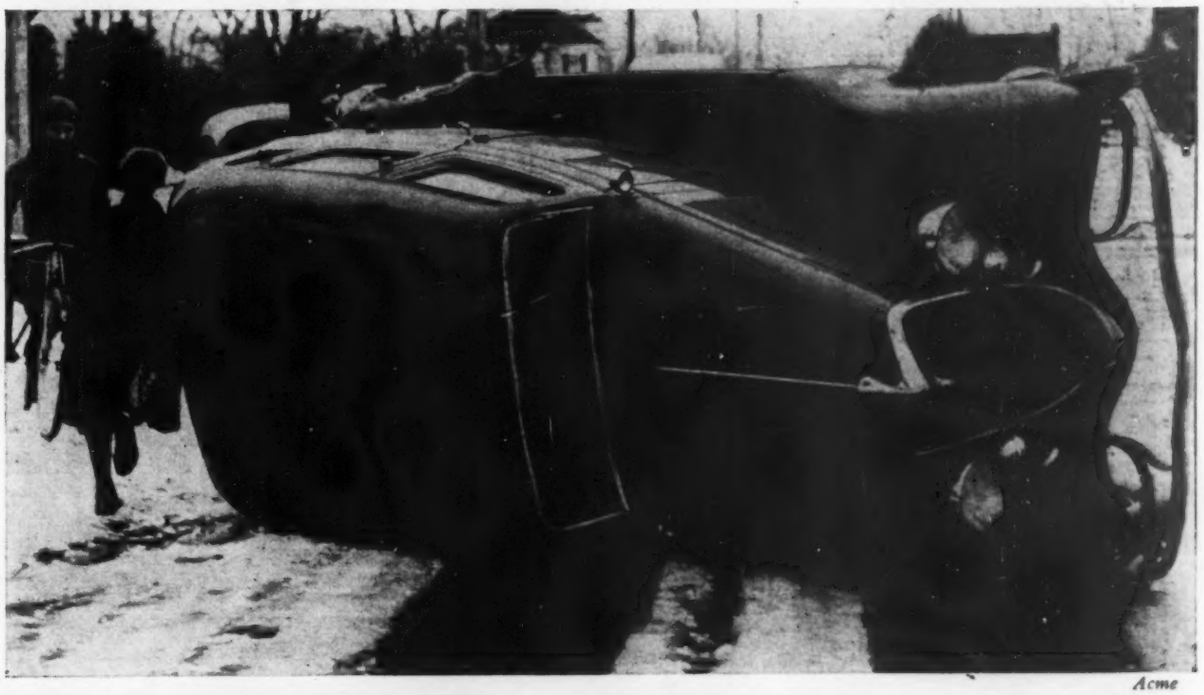
WHAT TO DO for frostbite or frozen feet—that is the question! Whether 'tis better to use snow or to use fur with which to rub or to thaw them out gently, thus protecting the skin against bruising and abuse until the doctor comes; the latter of course is our suggestion.

HAZARDS

MAMA THINKS Johnny is pulling Jimmy on his nice new sled; but soon the car will start, and Johnny's smile will change to excitement, to fear, to unconsciousness.

HE PUT ON HIS BRAKE suddenly — she spun on the slippery street until she hit the curb—and then she turned over. Now he's in the hospital, and the auto-tower will soon pull his pride and joy away.

Acme



Acme

Stephen Deutch

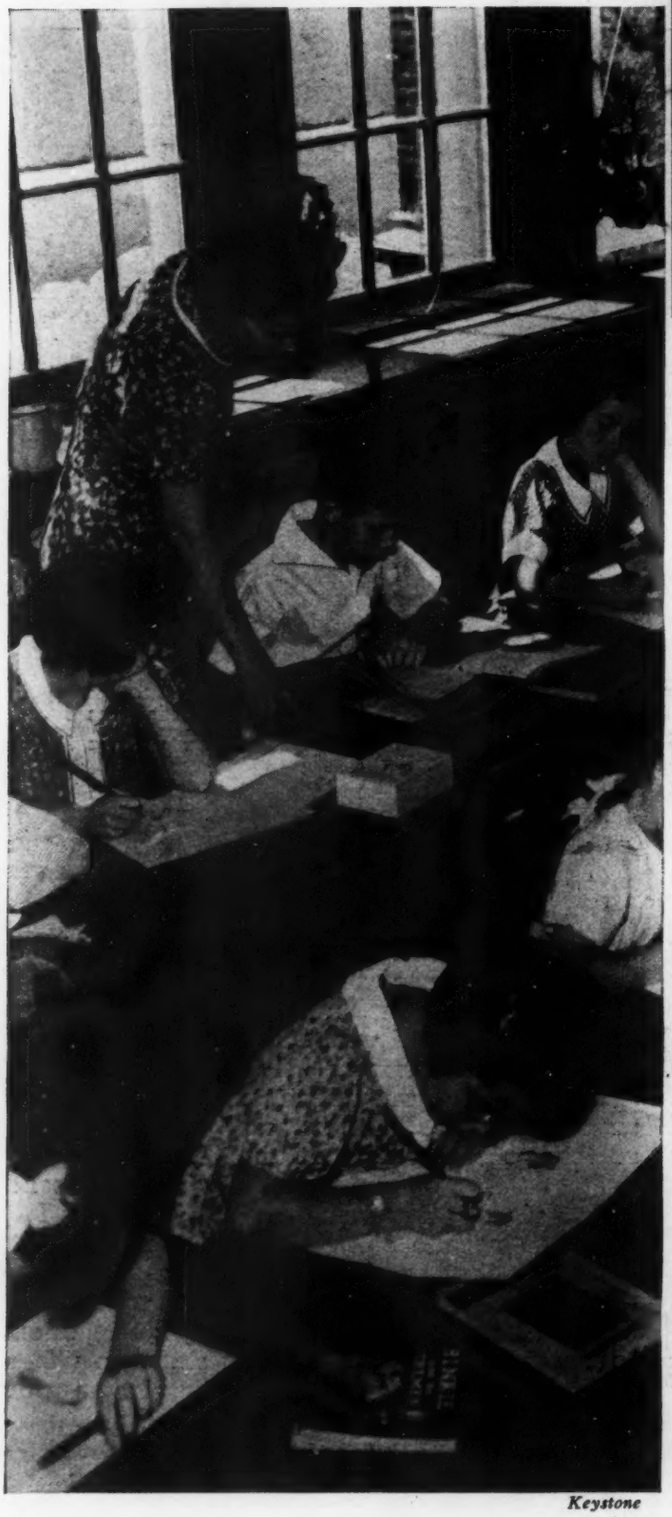
MR. SIMPLETON is slowly succumbing to the deadly fumes of carbon monoxide gas. He let his motor run in a closed garage.

Ewing Galloway

FOG AND MIST obscure the sight, and the umbrella blinds the pedestrian to the approaching traffic. That's how accidents occur.

—MORE HAZARDS

HERE THEY ARE crowded together in school. Every time one of them sneezes, four or five others catch the spray. Colds spread rapidly when children are herded together, particularly without adequate ventilation.



Keystone

Stephen Deutch

THIS BOY may catch cold himself, but he's not going to give his cold to somebody else. He covers up each cough and sneeze with his paper handkerchief.

MAMA IS NICE AND WARM in her new fur coat, but she's hardening little Mary to the cold, and little Mary's bare knees are rattling like castanets.

Stephen Deutch

Acme

SKATING IS GREAT SPORT but swimming in the icy waters after the thin ice breaks is ————!

Stephen Deutch

HE WEARS A COAT AND VEST, and the room is too warm; and the girls wear—well, you know what they wear—and the draft makes them cold. Drafty offices without controlled ventilation mean increased colds.

Stephen Deutch

THE BIG BOSS simply couldn't stay home, so he brought his cold to the office; and the next week a third of the staff stayed home, and it didn't do him much good to come down.

AIR

THE AIR CONDITIONER SHOWN AT RIGHT IS A SELF CONTAINED, PORTABLE UNIT FOR USE WITHIN THE ROOM TO BE AFFECTED, WHILE THE CENTRAL SYSTEM, SHOWN BY WALL OUTLETS, ABOVE, CAN CONDITION A WHOLE HOME.

Photographic Illustrations, Inc.

TO MANY OF US the term "air conditioning" has rather a vague meaning. We are apt to think of it in terms of hot weather comfort only, for whenever it is mentioned we immediately recall the pleasantness and relief experienced when stepping from the hot streets of midsummer into the nice cool atmosphere of an air conditioned store or moving picture theater.

But there is a great deal more to air conditioning than that, and while cooling us off in hot weather is one of its important functions, it is, after all, but one of many. Air conditioning is a year round proposition in which many elements play a part. It is the result of many years of constant and gradual development, and now that it is here, an established fact, we should know more about it than most of us do. Many of us have longed for the day when it would be practical, and now that time has come for those who can afford the cost.

When we stop to think that the history of modern air conditioning extends back more than thirty years, it would seem that its growth has been slow. This is due partly to the fact that the early installations were used chiefly in connection with industrial processes, and consequently the benefits were experienced by comparatively few people. It was not until ten or fifteen years ago that it was generally adopted by the commercial world, and today it is in that field that the most rapid expansion is taking place. The total number of air conditioning plants installed or under contract in Chicago at the end of September 1937 was 1,905. This means increased comfort for countless Chicagoans.

Many ailments may be relieved by the conditioning; that is, by breathing clean air of the proper temperature and humidity. Pollen and dust are removed, and it requires no stretch of the imagination to realize what that means to hay fever victims. The overdry air of our homes in winter becomes a thing of the past. Relief to sufferers from sinus infections, colds and similar ailments has been claimed but awaits proof through more extensive observation. The shutting out of street noises in summer is also advantageous to the health, for it is a boon to tired nerves and is conducive to rest and recuperation.

Today air conditioning may be defined as the simultaneous control of temperature, humidity, air motion, cleansing and air distribution within an enclosure. The year round functions of air conditioning are air cleaning and distribution; the winter season functions are heating and

CONDITIONING

humidifying, and the summer season functions, cooling and dehumidifying.

First let us consider the year round functions, distribution and cleansing.

Elements of distribution which must be taken into account in the design and control of air conditioning equipment are (1) distribution of the conditioned air from the air conditioning apparatus to the various rooms; (2) the speed with which the conditioned air moves through the pipes or ducts of the distribution system and into the various rooms; (3) movement of the air within a single room, for it is important that the air be properly circulated within any conditioned room, and (4) the equalizing of air motion in the various rooms of the building to prevent still or stagnant air in one room and drafts in another.

Cleaning means the removal of dust and soot, odors, pollen and bacteria from the air by passing it through a filter or spray. Cleaning is obviously essential to comfort and health.

In winter, in addition to distribution and cleaning, heating and humidifying are necessary. Heating requires no explanation other than to say that air conditioning may be effectively installed with any kind of heating plant.

Air can hold only so much moisture, and when it has absorbed all it can hold it is said to be saturated. When less than the maximum amount is held, the percentage is called the "relative humidity."

There are two reasons for adding moisture to warm indoor air in winter; first, for comfort's sake; and second, because, for comfort, it is not necessary to have the air as warm when properly humidified as it is when the relative humidity is lower.

In summer, to distribution and cleaning we add cooling and dehumidifying, or drying. Air may be cooled by passing it over coils cooled with cold water, by mechanical refrigeration or by passing it through a cold water spray or over ice. For large installations, above 100 tons, the recent trend has been in the direction of chilled-water circulation. In many cases the same pipes are used for hot water circulation in winter.

When we suffer in oppressively humid weather we say, "It's not the heat; it's the humidity," for because of evaporation from its surface, the human body feels cooler in dry air of comparatively high temperature than it does in air of a considerably lower temperature which is so moist that evaporation takes place slowly. It is also true that air in motion feels cooler than still air.

From the foregoing it may readily be understood that, since various combinations of temperature, humidity and air motion will produce the same degree of comfort, a comfortable temperature is not one that is measurable by a thermometer alone. During recent years, engineers have made elaborate and exhaustive laboratory tests to determine the best combinations of the various factors to produce comfort.

Because it is not possible for us to stay within an air conditioned space all the time, day and night, the year round, it is necessary for air conditioning to compromise between ideal and practical conditions. In winter we can go from a warm house out into the cold and ordinarily not suffer harmful effects to our health because we dress warmer when we go out. But in summer we do not dress warmer when we enter a space conditioned to 70 degrees from a temperature of 100 degrees outside. So the object should be to maintain conditioning at a degree which is comfortable in comparison with the outdoor temperature.

There are two methods of air conditioning, the central system and the unit conditioners, the central system being used for large installations, such as a suite of rooms or a complete building, while the unit conditioners are self contained devices located within the space being conditioned. Unit conditioners are built to blend harmoniously into the background of the room in which they are installed, and they include unit coolers and all-year conditioning units.

Unit coolers may be used to provide cooling alone or both cooling and dehumidifying; and when all-year conditioning units are connected with a central source of heat they also provide heat during the winter. When connected with a central cooling plant or an individual built-in compressor they provide cooling and cleaning in the summer. Some units also include means of humidifying the air in the winter and dehumidifying it in the summer.

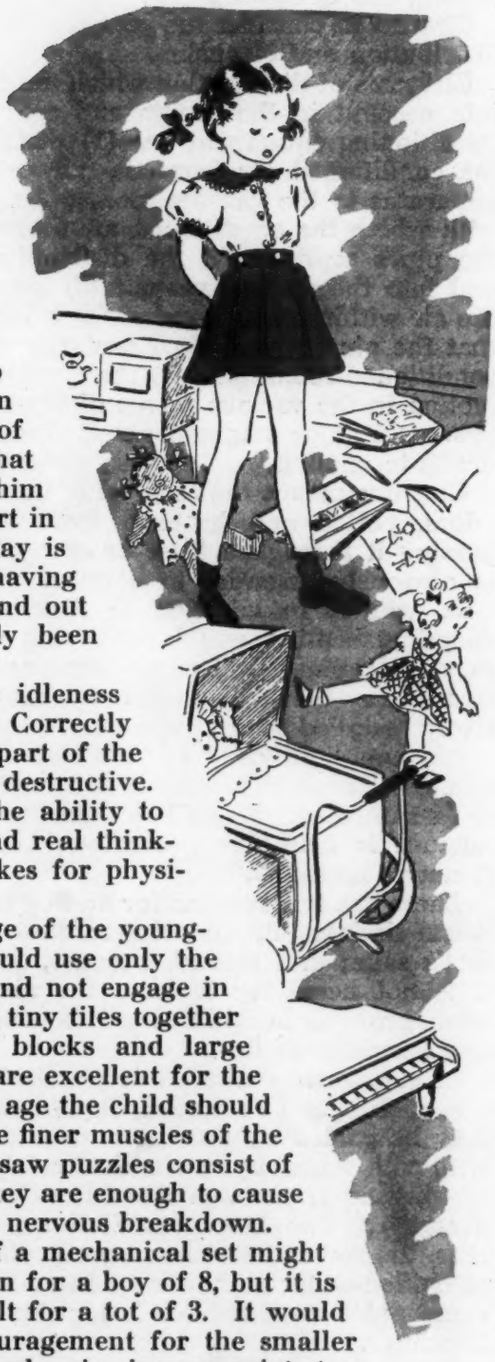
Air conditioning was adopted first by industry, next by commerce, and it is now finding its way into our homes and apartment buildings. It has been confidently predicted that the time is rapidly approaching when air conditioned dwellings will be as much a part of our modern life as automobiles and mechanical refrigerators, and for the sake of our comfort and possibly our health, that day cannot arrive too soon.

By ROWENA GAILEY

TOYS for CHILDREN

By RUTH PECK McLEOD

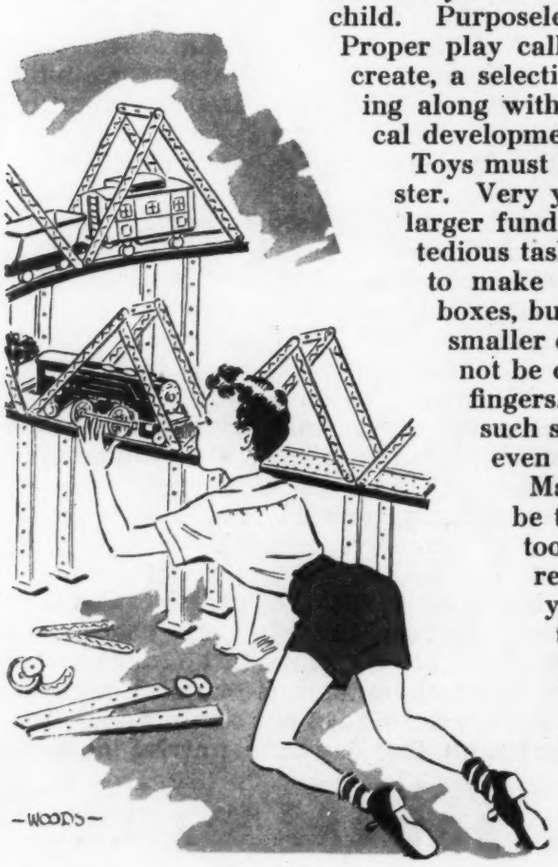
"BUY THE CHILD a toy to keep him quiet. Get him something that will amuse him" is the plea so often heard; yet the purpose of a toy is not to amuse but to permit the child to develop his muscles and mind as well as the esthetic side of his life. Even the bright ball of the tiny baby is to make him grow into a strong, healthy youngster crawling or toddling after it. From his set of blocks of graduated size he learns to compare the small with the large, to fit one into the other in the proper order.



There may be toys on the market that do amuse, but they do not fill the real function of a toy. They are the lazy, passive type of plaything. Some of these are of the type that an adult winds up while the child watches him discontentedly because he has no active part in playing with it. Frequently before the day is over the child is soundly spanked for having torn up the mechanical toy trying to find out how it "works," although he has only been investigating.

ONLY ONE TOY AT A TIME SHOULD BE GIVEN THE CHILD, AS TOO MANY WILL RESULT IN CONFUSION.

The busy child is the happy one; idleness means discontent, day dreaming. Correctly chosen toys call for activity on the part of the child. Purposeless play is dull, destructive. Proper play calls for ingenuity, the ability to create, a selection of materials and real thinking along with exercise that makes for physical development.



Toys must be suited to the age of the youngster. Very young children should use only the larger fundamental muscles and not engage in tedious tasks, such as putting tiny tiles together to make a design. Large blocks and large boxes, but not heavy ones, are excellent for the smaller child. At an early age the child should not be called on to use the finer muscles of the fingers. Some of the jig-saw puzzles consist of such small pieces that they are enough to cause even an adult to have a nervous breakdown.

Making things out of a mechanical set might be the ideal occupation for a boy of 8, but it is too trying and difficult for a tot of 3. It would result only in discouragement for the smaller youngster. Parents who give inappropriate toys to their children often feel the youngsters are ungrateful because they seem dissatisfied. Too many parents buy too many toys because they want their children to have "everything." Too many toys result in unhappiness—the child's interests are scattered. The result is confusion, fatigue. The child jumps from one toy to another. The youngster who has practically no

toys is better off than the one who has every conceivable kind showered on him, for the former will draw on his ingenuity enough to devise some; he will fashion a train out of pieces of wood. He will create because of his desire to have some toys of his own.

Frequently parents will boast that they never go down town without bringing the child "a little toy," and all too often these are flimsy toys, hastily purchased without regard to durability or construction. The child assumes the attitude that the toy is not expected to last as another will soon take its place. This "here today and gone tomorrow" idea spoils the child and makes him feel that nothing need be taken care of.

Sturdy toys well designed teach children the value of taking care of their property. Whenever possible, toys should be kept in their original boxes together with any directions as to playing the game or operating the mechanism.

Honestly constructed toys that withstand wear are usually well proportioned, stably designed. From a child's contact with toys he gets his conception of beauty, his ideas of art and design. Impressions of beautiful illustrations in his story books will stay with him throughout his life. The interior decoration of the playroom should be as carefully studied as the remainder of the house, for it is to be a part of the child's daily instruction in art and design.

The nursery should be left neat when play is over; a child should be encouraged to get out only one or two toys at a time, then to pick up those before he attempts a different sort of play. The child who has a roomful of toys and gets everything out and stamps his foot in the middle of the floor because he has nothing he likes is only too familiar to every one. Carefully planned play, subtly suggested by the mother, will stimulate the child's imagination and help him to have definite ideas as to what he wants to do. At all ages he should have companions that assist in dramatization of stories, playing store or any play selected.

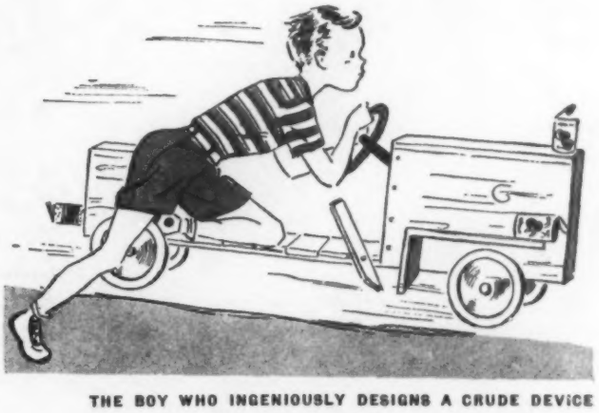
Not every house can boast a nursery, but every one can provide some place to keep the toys in an orderly fashion. There can be no lesson in order in a house where the toys are put just anywhere, here and there among Mother's things. Such a practice encourages leaving the playthings for some one else to put away. I have known many women to sacrifice much needed space in breakfast rooms, cupboards or linen closets in order that the child might have a place to keep his toys in an orderly state. Any mother who teaches her youngster to pick up his toys after his play may temporarily have to give up a dresser or cupboard for storage of toys, but she will be repaid later by having a child who will pick up his clothes, will clean the tub after his bath and will not leave the top of his dresser "loaded." Habits of neatness instilled early persist throughout life.

THE CARE OF PETS WILL TEACH THE CHILD RESPONSIBILITY WHILE HE IS WATERING AND FEEDING THEM, AND IT WILL CULTIVATE A REAL SYMPATHY FOR ANIMALS.

All children need some furniture suited to their size—sturdy chairs with a table of appropriate height for painting, coloring with crayons, clay modeling and making scrapbooks. No child can be expected to remain contented long when he is working at the dining room table with his feet dangling high above the floor and his chin barely in line with his task.

The normal child is full of pep and needs to get rid of some of his "steam" by vigorous, outdoor play. Frequently his pets will help him in this. Pets are good playfellows, good companions, but they may also be classed as "toys" in that they cultivate in the child a sympathy for animals and give the child his first lessons in responsibility while he is watering, feeding or caring for the cages or pens of the animals.

With outdoor recreation there must be perfect freedom, no precautions given about not getting dirty. Stout *(Continued on page 89)*



THE BOY WHO INGENIOUSLY DESIGNS A CRUDE DEVICE FOR COASTING BY CREATING IT FROM OLD DISCARDED ARTICLES IS OFTEN THE ENVY OF THE NEIGHBORHOOD.

WILLIAM C. GORGAS

Into the fetid swamps of Panama
A little gray-haired man with gleaming eye
Went, drained them true to sanitation's law,
And let the scourge of yellow fever die.
The Stegomyia searched the humid plain,
His home through all the centuries of yore,
But looked for his old habitat in vain.
The dredge had banished it forevermore.

Simple it was, when one knew what to do,
As Gorgas did, and how to do it well.
Now the long reaches of the ages through,
Life will abide where Death was wont to dwell.
Thanks to the Providence that sent him there,
That modest little man with silver hair.

WALTER REED

In Arlington his quiet ashes rest,
Who was so restless in his earthly day;
Who put so well old theories to test
That new ones were evolved; who found a way
To stay the ravage of an ancient scourge
That had attacked from every swampish fen
For ages, with a demoniac urge,
Working grim havoc with the race of men.

A great hospital is his monument.
How fitting that it is no needless thing
To perish as the wheeling years are spent,
Like others that have passed on silent wing,
But something to perpetuate his hand
Among the broken bodies of the land!

By Clarence Edwin Flynn

TITANS of the TROPICS

By ANNETTE FISKE

WHEN Surgeon General Thomas Parran of the United States Public Health Service gave warning recently that yellow fever might be introduced into this country through airplanes from Brazil, he brought to mind certain pictures of conditions as they existed in Cuba and the Canal Zone forty years ago. The horrors attendant on a yellow fever epidemic had within a few years come to be believed a thing of the past, for it was thought that the disease had been practically eradicated throughout the world. News that it still flourishes in the jungles of Brazil comes therefore as something of a shock. The fact that it is also said to be carried in some other way as well as by the mosquito heretofore considered its only carrier is likewise somewhat startling.

Because the task of eradicating the disease from South America is likely to be a lengthy one and because the flying time from Brazilian ports to Miami, which is now four days, is expected soon to be shortened to two days, Dr. Parran considers the possibility of the entrance of yellow fever into this country so serious that he has established a special committee of the state and territorial health officers to work with the United States Public Health Service in drawing up a yellow fever control program. The objects at which he aims are immediate protection of terminals for air traffic with South America, measures to reduce the breeding of the yellow fever mosquito in the southern states, and the creation of an emergency organization to care for any cases of the disease that may arise. With the threat of yellow fever thus once more looming on the horizon, it is interesting to review its first conquest.

The tropics are said to have been the first home of man, their warmth being necessary to his existence. There he prospered and was happy. But the infectious germs, though they could not move as he could, flourished even better than he in the warmth and eventually became extremely annoying, to say the least. Perhaps it was the fact that he was harrassed by the tropical diseases that drove man to invent fire and clothing in order that he might migrate to a cooler climate where they could not follow. At any rate only after their discovery could he live in the temperate zone, which has been the abode of white men ever since. Then with another turn of the wheel of fate the circle was completed. Having discovered effective means of fighting germs, man went back to the tropics as the place where he could gain the greatest wealth with the least labor. In the first years of the twentieth century his victory over yellow fever and malaria, the worst scourges of tropical lands, made this possible. The present threat of defeat can mean only a temporary setback.

Those who tried to colonize America, whether Spanish, Portuguese, Dutch, French or English, all discovered early that white men could not live and thrive under existing conditions. They lost their strength, and many died, a fate laid to the climate and so regarded as unavoidable. Because they did not understand the nature of disease and its causes, men could not make their living conditions sanitary. Virulent epidemics spread over Europe from time to time, wiping out millions of lives, as many as 25 million in the fourteenth century alone, it is said, when the plague ran riot. Prevention of disease was not even attempted. The source of yellow fever in this country is not fully agreed on even now, some saying it may be traced back to the siege of Troy and others that it was introduced into America with the slave trade from Africa. Certain it is, however, that it existed in America before the arrival of Columbus. After weighing all the facts, General Gorgas reached the conclusion that it originated on this continent and was well known to the Indians, as it was to Aztec authorities, whereas syphilis was known abroad but not on this side of the Atlantic.

When Columbus arrived, yellow fever was endemic on the shores of the Caribbean Sea and the southern shore of the Gulf of Mexico. The arrival of the ships made its spread easier and led to its extension to neighboring regions. For a hundred years after its founding in 1511, Havana was a healthful city; and though there were several severe epidemics there in the seventeenth century, it was not until 1762, when the city was occupied by English colonial

troops, that the disease became endemic. For then was provided a supply of nonimmune persons, a supply kept up through the centuries by the fact that the port was opened to general commerce and to a continuous train of Spanish immigrants. Near by, in Panama, whose first white visitor was Columbus on his third voyage, the old city of Panama was founded only a few years later than Havana, in 1519, one of the permanent settlements that resulted from the visit of Balboa. It, too, became a large commercial metropolis, and for 400 years suffered from the same disease of yellow fever, which had been introduced by the early conquistadors. In fact, both cities stood out as remarkably unhealthful even for the tropics.

If the Panama Canal is looked on by most of the world as a remarkable feat of engineering and an aid to commerce, it was regarded by General Gorgas, who had charge of the sanitary work there at the time of its construction, as having its greatest value in the safety it gave life in the tropics. For it was the sanitary discoveries made just before in Cuba and put into practice there that reversed conditions, enticing man back to the fertile tropics he had deserted.

For the 200 years preceding the Spanish-American War a losing fight had been carried on with yellow fever, which caused enormous loss of life and vast destruction of property. The worst epidemic in this country, which occurred in the Mississippi valley in 1878, caused 13,000 deaths and the loss of a hundred million dollars, a loss due largely to the quarantines. Hundreds of local quarantines stopped all income in the various communities for six months. Poverty and suffering always followed epidemics of yellow fever for this reason; and such was the dread of the disease that all who could left town as soon as a case was discovered, often heartlessly abandoning sick and helpless relatives. The towns where they took refuge in their turn, if the truth was learned, treated them as though they were lepers.

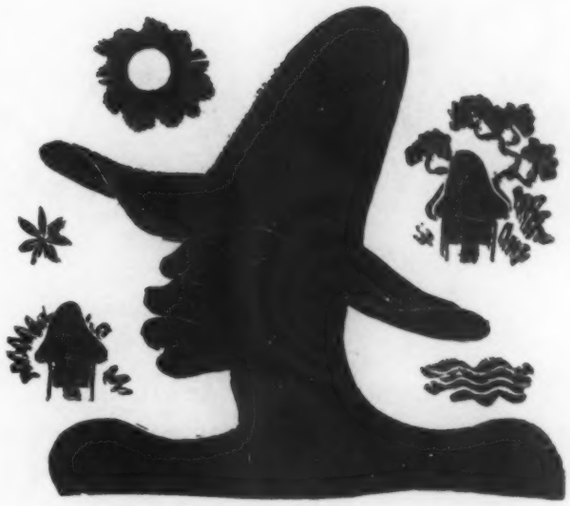
HAVING DISCOVERED EFFECTIVE MEANS OF FIGHTING GERMS, THE WHITE MAN, ONCE DRIVEN OUT BY THE TROPICS, RETURNED TO CONQUER THEM

Continuous warm weather is necessary for the mosquito carrier of yellow fever to breed, and for that reason the disease is never endemic where cold weather comes. For many years, Havana with its mild climate was the center of its spread. Ships would become infested while in the harbor, and all those on board might die. When the American army went to Santiago, though all the men were sound and healthy it took but two months to destroy their strength and their morale. All felt they would die if they remained, and officers and men might be seen to weep when a ship left and they could not go. So General Gorgas, who was immune to the disease, obtained permission to go with the troops that took possession of Havana in December 1898. There he was made health officer and, as yellow fever was then regarded as a filth disease, at once set about cleaning up the city in a more effective way than had probably ever been tried in any city before. Yet, though Havana was spick and span by the middle of 1900, the yellow fever was worse than ever. The Cubans laughed.

The cause of yellow fever was at that time unknown. Though an Italian, Sanarelli, had claimed a few years before that a bacillus caused it, and a board of medical officers sent out by the United States government agreed with his report, Gen. George M. Sternberg, Surgeon General of the United States Army, a leading bacteriologist and an authority on yellow fever, felt doubtful. He therefore appointed Drs. Walter Reed and James Carroll to look further into the matter. When yellow fever broke out among the American troops in Havana these two men with Dr. Jesse W. Lazear and a Cuban immune, Dr. Aristides Agramonte, were made a board to study its cause.

Having easily disposed of the bacillus theory the members of the board turned their attention to such other information as was available on the subject. Dr. H. R. Carter of the Public Health Service in Mississippi had written on the extrinsic incubation of yellow fever, a point that impressed Dr. Reed considerably. Then Dr. Carlos Finlay, one of Gorgas' fellow members on the committee to which all cases of yellow fever were referred, had for twenty years been asserting that yellow fever was carried from person to person by a mosquito. In fact, he had gone so far as to pick from six or seven hundred species of mosquitoes the species Stegomyia as the carrier, though he had never succeeded in giving the disease. When, therefore, other theories were found to lead nowhere, Dr. Reed decided to try out the mosquito theory despite a general skepticism, even on the part of Gorgas.

Fortunately the Governor General of Cuba, Gen. Leonard Wood, had been himself trained as a doctor and, understanding the importance



of the work, willingly granted funds and the permission to experiment. Some members of the board first experimented on themselves, with illuminating results, after which volunteers were sought outside. To find people willing to be experimented on might seem difficult, but all Spanish immigrants expected to have the disease and wanted it over with as quickly as possible, especially as immunes drew twice as large a wage, and one attack conferred immunity. The good living conditions, the prospect held forth of a light case, and the bonus of $250 promised made it easy to obtain volunteers. In fact, it is said that the soldiers decided the opportunity should be theirs and began taking the Spaniards to a pile of bleached bones near a lime kiln, implying that was the fate that awaited them. Whether or not this tale was true, the Spaniards suddenly withdrew, and only the fact that American soldiers volunteered made it possible to continue the experiments.

Through the splendid self sacrifice of these men and Dr. Reed's careful planning, the facts about the spread of yellow fever were obtained. It was proved beyond doubt that yellow fever is carried from person to person by the female Stegomyia mosquito only, that the yellow fever patient must be bitten within the first three days of his disease and that the mosquito cannot give the disease until from twelve to fifteen days have elapsed after the bite. Thus, it was not, as had been thought, a filth disease, nor was it contagious in the ordinary acceptance of the term.

Here was knowledge that might well lead to the elimination of yellow fever; but at this point Dr. Reed's work stopped. It was Gorgas who, first in Havana and then in Panama, attacked the problem of the practical application of this knowledge and conquered it. Having in February 1901 failed in his efforts to control yellow fever in Havana through cleanliness, and observ- *(Continued on page 80)*

MISS FOSDICK

MRS. DELANEY

AFTERNOON

By FLORENCE

CHARACTERS

IN ORDER OF THEIR APPEARANCE

DORIS ADAMS DELANEY (MRS. DOUGLAS DELANEY), a charming and clever person

MABEL DAWSON, a devout follower of cults and "isms"

MRS. BLACKBURN, large in mind and spirit as well as in body

MRS. THOMPSON, sympathetic wife of the health officer

MRS. MASON, wife of a physician

CATERESS, whose tongue may be silent, but whose hands and feet are busy

MRS. ARNOLD, wife of "Dr. Larry" Arnold

MRS. CUNNINGHAM, who loves to mind other people's affairs

ELIZABETH CUNNINGHAM, who habitually disagrees with her mother

MISS EUPHEMIA PIKE, an ardent antivivisectionist

HELEN FORBES, Dr. Thompson's supervising nurse, who comes in uniform

MRS. VANCE, Mrs. Delaney's hostess and collector of celebrities

MRS. GOODRICH, whose pocketbook opens for any "Cause"

MISS FANNY FOSDICK, whose success in life has not interfered with her judgment

MRS. DORAN, a woman ever ready to learn something new

MRS. PETTIT, a round, rosy little grandmother

MRS. COOPER, never an extremist

MRS. SANFORD, who hates misrepresentation

MRS. BORDEN, a pastor's wife, a fact which has never bothered her sense of humor

DOUGLAS DELANEY, who, being an amiable fellow, has tolerated his wife's "Cause"

SCENE

A clubroom. Downstage, right (actor's) is a low platform on which stand a table or desk and chair for the president and a small davenport for guest speakers. Set in an arc around this platform should be four rows of chairs, the rows widening toward the footlights. From a door (outside) down left an aisle should be left to platform. Up left should stand a large table and a chair for woman who pours tea. There should be another door in right flat to telephone and dressing room.

It is an afternoon in early fall. MRS. DELANEY *is just finishing her talk to the club when the curtain rises. She is exquisitely gowned; her hat is extremely modish with a tiny bird perched saucily thereon; a lovely silver fox is thrown carelessly over one shoulder.* MRS. DAWSON *sits enthralled on the davenport, and* MRS. BLACKBURN *occupies the Chair with the manner of a judge on the bench. Planted in the real audience should be two groups of actors: one consists of* MRS. PETTIT *and* MRS. DORAN, *who sit near the front on right (audience), and the other of* MRS. COOPER, MRS. BORDEN *and* MRS. SANFORD, *who are seated a little farther back in center. On the stage the actors should be scattered, and supers should occupy the rest of the seats, except for six vacant ones. The* CATERESS *goes in and out door, down left, bringing in tea things. Club members may knit or crochet.*

MRS. DELANEY: And so in conclusion, let me emphasize these points: We of the Anti-vivisection League maintain that experiment on living creatures is unnecessary either to demonstrate already known facts to students or to investigate theories which may or may not have any relationship to the treatment of human suffering. We also maintain that the maltreating of animals such as is done in vivisection tends to bring out those qualities in the operators which existed in the brute man centuries ago and from which civilization has rescued our race. And last, but most important of all, we maintain that vivisection is in the hands of the Medical Trust, personified by those officials who control the policies of organized science. These men are to be distinguished from doctors generally, few of whom, I am sure, favor vivisection. And now I want to thank you for your kind attention. *(She smiles cordially and sits down amid scant but polite applause.)*

(MRS. DAWSON *rises to speak.*)

MRS. DAWSON *(gushingly):* I'm *very* sure there is not a woman present who does not feel that her afternoon has been *well* spent. *(Turning to* MRS. DELANEY*)* We, one and all, sincerely *thank* you for your very *enlightening talk.* (MRS. DELANEY *smiles graciously.*) I doubt if there is one woman present who will not desire to give some *contribution* to this *important* Cause. So, before the meeting adjourns for tea, I am going to ask our president to give us a little time to ask questions and *perhaps (she looks coy)* to *pledge* to this *worthwhile* project. *(She sits.)*

MRS. BLACKBURN *(rising):* Perhaps it would be more to the point to open the meeting for discussion. There may be those who do not *(she smiles)* shall I say, see eye to eye with Mrs. Delaney? Is there any discussion?

MRS. THOMPSON *(rising):* Madam President—

MRS. BLACKBURN: Mrs. Thompson. (*Turning to* MRS. DELANEY) The wife of our health officer.

STUDY CLUB

MARVYNE BAUER

MRS. THOMPSON

MISS PIKE

MRS. THOMPSON: I would like to ask Mrs. Delaney a rather personal question if I may.

(MRS. BLACKBURN *sits as* MRS. DELANEY rises, *looking not quite comfortable.*)

MRS. DELANEY: Ah—yes—certainly.

MRS. THOMPSON: I would be interested to know whether you have any children, Mrs. Delaney.

MRS. DELANEY *(evidently relieved):* Yes, three —twin girls, 15, and a boy of 12.

MRS. THOMPSON: Thank you. *(Sits.)*

MRS. MASON *(rising):* Madam President— (MRS. BLACKBURN *rises hastily.)*

MRS. BLACKBURN: Mrs. Mason. (*Aside to* MRS. DELANEY) Wife of a physician.

MRS. MASON: You are so opposed to vivisection, Mrs. Delaney, I suppose none of your children has been vaccinated or had toxoid—which are products of work on animals?

MRS. DELANEY *(scandalized):* Mercy, no! I wouldn't think of allowing their pure blood to be contaminated by such poisons!

MRS. MASON: What would you do if one of your children were exposed to smallpox?

(Enter CATERESS *through door, right flat; goes to platform and gives message to* MRS. BLACKBURN, *who glances at it and continues to hold it.)*

MRS. DELANEY *(smiling):* I would not worry about it. You see, I have been very careful about my children's diet and about their habits. They have never lived in the dirt and smoke of a city; their lungs have breathed only pure mountain ozone. They have always had carefully supervised exercises, too. As a result, they are marvelously healthy, and I don't have to worry about disease.

"YOU'D FIND MY RECORD CLEAN IF YOU CARED TO INVESTIGATE. AND MY HUSBAND IS WELL ABLE TO BUY MY CLOTHES."

MRS. THOMPSON *(jumping up):* But *contagious* disease is very different from organic disease!

MRS. DELANEY *(with finality):* Disease is disease! (MRS. BLACKBURN *hands her the message, which she reads.*)

(Members talk together in pantomime during next two speeches. Both MRS. MASON *and* MRS. THOMPSON *sit down.)*

MRS. MASON (*aside to* MRS. ARNOLD): How can people be like that!

MRS. ARNOLD *(laughing):* It's not a state of *mind*—it's a state of *emotion!*

MRS. CUNNINGHAM *(rising):* Madam President—

MRS. BLACKBURN: Mrs. Cunningham.

MRS. CUNNINGHAM: The talk this afternoon has been most interesting—

MRS. ARNOLD (*aside to* MRS. MASON): See! I told you it's a state of emotion!

MRS. CUNNINGHAM *(continuing):*—and to animal lovers, most informing! What is the cost of membership in your league?

MRS. DELANEY: Five dollars a year; that includes a subscription to our magazine, "Love for Animals."

MRS. CUNNINGHAM: I'll see you after the meeting, Mrs. Delaney. *(Sits.)*

ELIZABETH *(aside to her mother):* The idea, Mother! Don't tell me you're going to join *that* bunch! They're mixed up with the weirdest lot of *nuts!*

MRS. CUNNINGHAM: Elizabeth—such language!

ELIZABETH: It expresses my feelings! When I want something really choice to read I always hunt up a copy of "Love for Animals." It's a *scream!*

MRS. CUNNINGHAM: I'm sure I don't see why it should be amusing—

ELIZABETH: Spiritualist healers, chiropractors, nudists, nature worshipers and what-have-you! And the phrases they use!

MRS. ARNOLD *(rising):* Madam President—

MRS. BLACKBURN: Mrs. Arnold. (*Aside to* MRS. DELANEY) Another doctor's wife.

MRS. ARNOLD: Mrs. Delaney, have you ever had an anesthetic?

MRS. DELANEY: When my children were born, yes. It was only ethylene gas I was told.

MRS. ARNOLD *(sweetly):* It might interest you to know that that anesthesia was developed in one of our universities through experiments on dogs. *(Sits.)*

(The irrepressible ELIZABETH *giggles audibly.)*

MRS. CUNNINGHAM *(shocked):* Elizabeth!

MISS EUPHEMIA PIKE *(jumping up triumphantly):* Ah-h-h! I was afraid of that! Mrs. Delaney, it is women like you who damage the Cause! Using products of this vile practice—wearing furs—buying hats with poor little birds—probably caught in some cruel way! How do we members know that the money from our memberships—the *animals'* money—

(ELIZABETH *giggles.*)

—hasn't gone to buy those things for you!

(MRS. DELANEY *appears distressed.*)

ELIZABETH *(aside to her mother):* I wouldn't have missed this for anything! (MRS. CUNNINGHAM *frowns and shakes her head.*)

MRS. ARNOLD (*aside to* MRS. MASON): I have heard they couldn't get along among themselves!

MRS. BLACKBURN: Miss Pike has been a member of your league for years.

MRS. DELANEY *(recovering composure and charm):* You would find my record clean if you cared to investigate. And my husband is well able to buy my clothes. I cannot answer your charge so far as the bird is concerned, but I can say that the fox was raised on a fur farm and humanely killed.

MISS EUPHEMIA PIKE *(sternly):* If you continue being our spokesman we would appreciate your leaving off the wearing of birds and furs! *(Sits.)*

MRS. BLACKBURN *(pointedly looking away from Miss Pike):* Are there any more questions?

(*Enter* CATERESS, *upstage door, with message; hands it to* MRS. BLACKBURN, *who reads it and passes it to* MRS. DELANEY.)

Another telephone call from your husband!

MRS. DELANEY: Yes, I'll call him after the meeting is adjourned.

HELEN FORBES *(rising):* Madam President—

MRS. BLACKBURN (*aside to* MRS. DELANEY): The health officer's right hand! *(Aloud)* Miss Helen Forbes.

HELEN FORBES: Mrs. Delaney, I cannot believe that a woman of your intelligence has read the other side of this question. May I give you some books to read?

MRS. DELANEY *(coldly):* I have read widely on this subject—I should not feel qualified to speak if I had not investigated thoroughly. (HELEN *sits.*)

MRS. VANCE *(rising):* Madam President—

MRS. BLACKBURN: Mrs. Vance.

MRS. VANCE: I am *heartbroken* at the *unkind* reception which has been accorded my guest. I shall write my *resignation* to the club *immediately* on my return home this afternoon. *(Sits.)*

MRS. GOODRICH *(rising abruptly):* I agree with you, Mrs. Vance. I, too, am resigning from the club! I also wish to announce that I am pledging $500 to the Cause. *(Sits.)*

(ELIZABETH *giggles, and her mother looks embarrassed.*)

MISS FANNY *(springing up):* Madam President, before this matter goes further may I speak?

MRS. BLACKBURN: Miss Fosdick. For those of you who do not know Miss Fosdick, let me say that her work with Dr. Alfred Macon of Baltimore has made her *(Continued on page 54)*

"DORIS—I'VE TRIED FOR AN HOUR TO GET IN TOUCH WITH YOU—I'VE BAD NEWS FOR YOU."

FOUR—and crippled

Hope for the handicapped child lies in intelligent direction of his mental, physical and social life, says

ELEANOR BURNHAM PECK

SURVEYS have established the fact that poliomyelitis, tuberculosis of the bone and rachitis, commonly known as rickets, strike most often in the preschool period of life. Fifty per cent of these preschool cases if discovered early can be cured, doctors say. However, until these diseases can be wiped out there is the probability that a high percentage of the children crippled each year will be in the 1 to 6 year age group.

To comprehend fully what it means to be disabled at this period of life, put yourself first in the place of a normal 4 year old and then in that of a crippled child of the same age. The normal child is hardly still three minutes unless he is asleep. Running from one object to another, he plays with many toys in quick succession. His playground includes the entire house, the yard, garden and city streets, in fact everywhere his legs and streamlined fire engine will carry him. For companions he claims the family, neighboring children, pets, flowers, grass and even ants. From minute to minute his world becomes larger as he demands and makes a multitude of contacts.

In contrast to this the crippled child's pace may be slowed by braces and crutches or almost stopped, if necessary treatment requires strapping to a frame. He plays with only those toys within his reach. His playground is limited to the bed, wheel chair or room. Perhaps he can't even get to the window to see what is making that merry song in the tree. Because he can't see for himself he may even cease to ask "why." For companions he must be content with those of the hospital staff who can spare the time to stay near him, the members of his family who can visit and the other hospitalized children who are able to get about. From hour to hour his world remains much the same because he lacks the opportunity to reach out and experience life as his normal friend does.

After spending several months or years in a hospital, undergoing treatment, the crippled child meets his normal contemporaries at the age of 6. What must that meeting be like? The child who from birth has been physically well is so far ahead of the other in experience that the recovered cripple seems backward mentally when he isn't at all. The latter quite naturally tries to meet the circumstances by choosing to avoid his companions because he doesn't know their games, or he may become aggressive and boastful in an effort to cover up his deficiencies. This absence of socialization may carry over into adulthood and result in a badly adjusted individual. In order that the period of hospital confinement for the tiny cripple may still be a time of developing personality, all possible experiences must be brought to him.

Scattered over the United States are innumerable hospitals, crippled children's schools and other institutions in which workers have seen the needs of the tiny cripple and have had the vision and financial opportunity to do some-

thing about it. Nursery schools or groups have been organized in these institutions. As state laws do not require the department of education to supply more than grade school and occasionally kindergarten teachers for hospital classes, the nursery groups had to be financed from outside sources. Aiming toward a rounded mental and physical development of the child, the groups were formed under the direction of physicians and trained workers. The latter were educated in the fields of nursery school technic and physical and occupational therapy.

With the realization that a youngster under 6 cannot completely cooperate in treatment with those in charge these trained workers have combined treatment with play. According to available space in their institutions, the nursery groups gather in a corner of the ward, in a separate room or outdoors. If outdoors, the child often has a chance to plant and tend a garden. Even to get down and inch along on his tummy in the sun, with that seemingly endless interest in poking every leaf or watching an iridescent beetle scramble between the grass blades, holds a fascination. Indoors, gay pictures and sometimes murals of nursery rhymes adorn the walls. Furniture and equipment is built with the child's needs in mind. The atmosphere of the entire place spells play and happiness.

The crippled child desires and plays with the same toys as normal children do and delights in the same variety of rolling stock which we daily see being propelled vigorously if somewhat erratically along our sidewalks. Often tricycles and kiddie cars need special pedals or straps attached to make them suitable for the crippled child; but these are easily supplied by the hospital brace maker. Play material ranges all the way from dolls, trains, picture books, playhouses, games and stuffed animals to swings and seesaws. The intricacies of a jungle gym offer an exciting field of conquest to a youngster with braces on both legs or a cast on his arm, just as to a husky child. A swimming pool or a bathtub yields all kinds of fun and is particularly useful in directing exercise through play. Besides recreational equipment the nursery groups use constructive material such as clay, blocks, painting equipment, peg boards, sand box and puzzles.

Each child comes to the group with a definite prescription from the examining orthopedic doctor. With careful supervision the child is encouraged to play with those toys which will develop him correctly. Activities which might augment his trouble are avoided. A little girl who is too young to know she must exercise her shoulder by lifting her arm and who will by choice let it hang useless at her side will lift it over and over if she is filling a sand mill. A child who needs hip and knee motion will have a grand time pushing a colored ball to a friend with his feet while sitting on the floor. A group of children all learning to walk, often a tedious business, will forget the slowness of it if playing store. One child sells colored balloons, and each in turn walks across the room to buy his favorite color with play money. The balloons are then used to help in gaining large arm movements, perhaps to music. The children in the group may help provide the music by playing toy instruments with the phonograph or by singing nursery rhymes.

Through this directed play the crippled child develops normally. His day is divided sensibly into periods for creative and recreational activity, treatments, rest and attention to formation of health habits. The nursery school fills the needs of the transitional stage between the time when the child enters the hospital acutely ill and the day when he returns home. He has an opportunity to seek and find, to create and be appreciated; and results are proving that when he leaves the hospital and joins his friends he possesses an adequate background of experience. He has learned to make the most of his physical power, and he is a socialized being, ready to meet and play happily with his well friends.

Helping the handicapped to a normal life and thus making the world a happier place for them is part of civilization's program. How is it being carried out? What is being done to assure the needed physical, mental and emotional adjustments, so that those hampered in body may still face life with a high heart and the knowledge and courage to make for themselves a useful place in the world?

The radio broadcast for January 26 (about a week before the President's Birthday Ball) will give important information on this subject. Read the announcement on page 76, and tune in on Wednesday, January 26, for fuller facts.

AFTERNOON STUDY CLUB (Continued from page 51)

more or less of an authority on matters of this kind. Miss Fanny Fosdick.

MRS. BLACKBURN *and* MRS. DELANEY *sit.* MISS FANNY *goes to the platform but does not mount it. She has a notebook in her hand, which she consults from time to time.)*

MISS FANNY: In her talk this afternoon our speaker made the statement that nothing for the good of mankind has come out of experimentation on animals. And yet there is a long list of diseases for which we now have a cure, or a method of prevention, all due to work with animals. Jenner's work with cowpox is too well known as the foundation for our present method of vaccination for me to dwell on—

MRS. DELANEY *(rising):* And you are about to say that vaccination prevents smallpox, aren't you?

MISS FANNY: Yes—

MRS. DELANEY: But you won't tell that vaccination has caused death in hundreds of cases —from *lockjaw!*

MISS FANNY: There have been cases reported, and when investigation was made, it was found that bunion rings had been put around the vaccination to keep the clothes from rubbing it.

MRS. DELANEY: And what difference would *that* make?

MISS FANNY *(mildly):* A great deal of difference—if the glue on the bunion ring was made from horses' hoofs infected with tetanus.

MRS. DELANEY: And how can you account for the situation in the Philippines in 1918? They had had compulsory vaccination there for years! But more than 50,000 people died of smallpox in 1918!

MISS FANNY *(smiling broadly):* I am familiar with that argument of your league! This is what *really* happened there. Prior to American occupation there were some 40,000 deaths from smallpox every year. The Americans brought the death rate down drastically through the medium of vaccination.

MRS. DELANEY: Not in 1918!

MISS FANNY: As is the case in our own country right now, the fear of the disease lessened perceptibly as cases of smallpox grew fewer, and officials became lax in their pursuit of vaccination. Large numbers of children were allowed to grow up without being vaccinated. And what happened when a case of smallpox landed among these unvaccinated people? They died like flies—yes, more than 50,000 of them! Only when effective vaccination was brought into practice again was the epidemic stopped.

MRS. DELANEY: That doesn't explain Japan's smallpox—where compulsory vaccination laws exist.

MISS FANNY: Oh, yes, it does. Many of the country people and many of the poor in Japan are never reached with vaccination. And they keep smallpox alive in Japan!

(MRS. DELANEY *sits as* MRS. DORAN *rises.*)

MRS. DORAN: You spoke of our country, Miss Fanny; did you mean that a smallpox epidemic is likely to happen here?

MISS FANNY: I'll answer your question in a moment, Mrs. Doran.

(MRS. DORAN *sits.*)

How many here have seen a case of smallpox—please stand.

(HELEN FORBES *and* MRS. PETTIT *are the only ones to rise.*)

Two—and one a nurse. Mrs. Pettit, was the case you saw a severe one? (HELEN *sits.*)

MRS. PETTIT: I've seen several cases—all in my own family. I was sent away to school as a little girl and while there I was vaccinated. Some years after, when I was at home again, my older sister came down with smallpox.

MISS FANNY: And she was very ill?

MRS. PETTIT: She died. Then my baby brother died. My father lost his eyesight. My mother carried *awful* scars to her grave. My younger sister wasn't so ill. I escaped altogether.

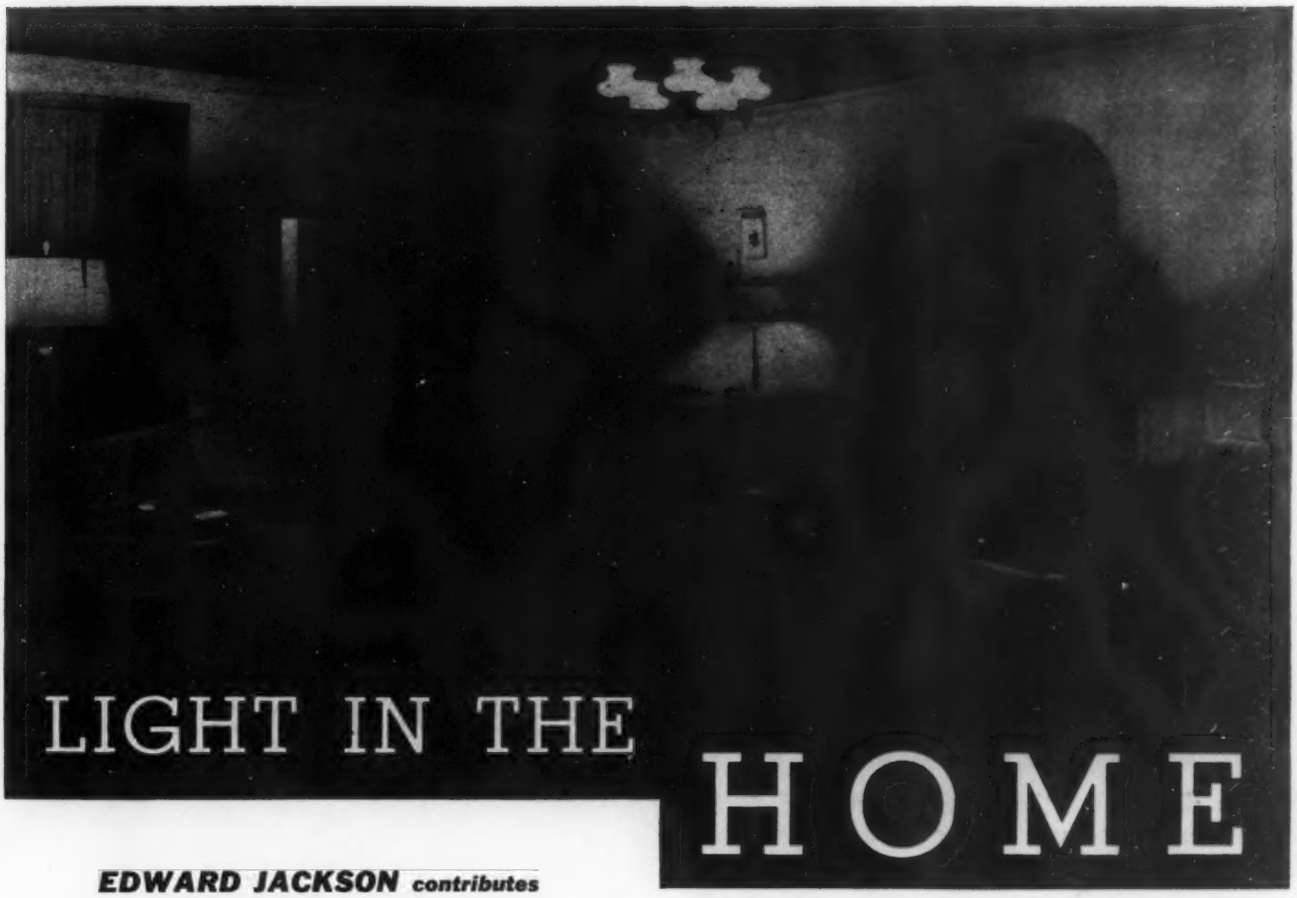
MISS FANNY: Then you believe in vaccination?

MRS. PETTIT *(emphatically):* Indeed I do! All my children were vaccinated very young—and vaccination in those days wasn't as simple a thing as it is now.

MISS FANNY: No, the method has been improved, hasn't it?

MRS. PETTIT *(smiling):* The only place I've been a funny-paper mother-in-law and interfered with my children has been on the vaccination business. I have *insisted* that my grandchildren be protected against smallpox and have the treatment against diphtheria—

MISS FANNY: Toxoid? *(Continued on page 81)*



LIGHT IN THE HOME

EDWARD JACKSON *contributes the third article of a series on the effect of illumination on the eyes*

THE HOME is a modern institution. The word has been in use about 700 years. Before there were homes, other things served some of the purposes of homes; but most things that make the modern home were unknown. Caves were the kind of homes cave-dwellers had. The caves kept them warm in winter and cool in summer, hid them from enemies, animal or human, and gave them a safe place to sleep. Great forests also gave some such protection; block houses and castles with moats around them and gates that could be closed did the same thing for the few who could live in them. They were places of security and rest.

Those who wanted to do things, to raise crops or animals for food or clothing went out from their places of refuge. Even when building houses to get refuge and rest, they had to go out to work, either on the sea or in fields, forests or mines. These were the conditions under which people had homes for hundreds of years. The home was for rest, the outside world for labor.

Gradually it was found that some kinds of labor could be done in homes, and this use of homes increased. Then it was found that houses could be built to work in, and many workers in one room or building made mass production possible. Factories and workshops protected machines, and workers to serve machines brought profit to the owners. The machines were better kept indoors. They needed neither light nor fresh air, and workers could be made to do without as much light and fresh air as their fathers had.

Gradually indoor work increased. Great buildings were erected in which many persons, both men and women, could be employed. Although they labored with less daylight, there was still enough to allow them to work and to bring results, but at the cost of more effort and less health. These big buildings shut off the light from space around them. But opportunities to work brought workers, and great cities grew. Light and health were scarce and expensive, but work made life possible.

The process of crowding people together compelled reduction of space and light for each person, and so for many persons light and health became luxuries or distant ideals that they could not hope to enjoy. It was not strange that when people had lived and worked in reduced light for most of their lives, they should lose the appreciation of good outdoor light and live without getting it for themselves or their children. In caves there are fish and other animals whose ancestors have long lived without light. These have the power of living

in the dark, and their eyes have degenerated until they have no power of seeing. Miners working in coal mines for some years get miners' nystagmus, an involuntary quivering movement of the eyes, which may totally disable them for work. Other degenerative changes are also especially frequent in the eyes of such workers.

As more people have come to work habitually without good daylight, artificial lights have been brought into use. The best of these are the improved forms of electric light; but all forms of indoor lighting give less light and cost something. With the first building of houses, even the free outdoor light was an expense. Window glass was at first quite costly and was supplied in small panes; many of these were required to let in a small fraction of the outdoor light. This added expense to admit light to the house caused most people to get along as well as they could with less light than they had outdoors.

Measurement of the actual amounts of light used shows that in the homes and schools the light falling on the thing looked at is generally between 5 and 50 "footcandles." The daylight on a clear day varies from 100 footcandles at sunrise or sunset to 10,000 footcandles at noon under the clear sky. Even on a cloudy day it shows from 100 to 500 footcandles. In thick forests the light is more like the light in ordinary houses. The shadows of tradition and custom, of forest and cave and mine, of houses for refuge and rest, remain to influence our standards for light in homes that now have different needs for light.

In the last hundred years a new idea has come into the world: that all children should learn to read and write and to study books; that these things are not merely for preachers, lawyers, doctors, people who write books and monks who spend their lives in reading books or copying manuscripts. This new idea spread, and it suits people so well that laws are made requiring children to go to school for certain years while they are growing up. But no one seemed to think that book learning required good light, much better light than had been known before. The light that was good enough for lighting houses was thought good enough for reading, writing, sewing and other fine work.

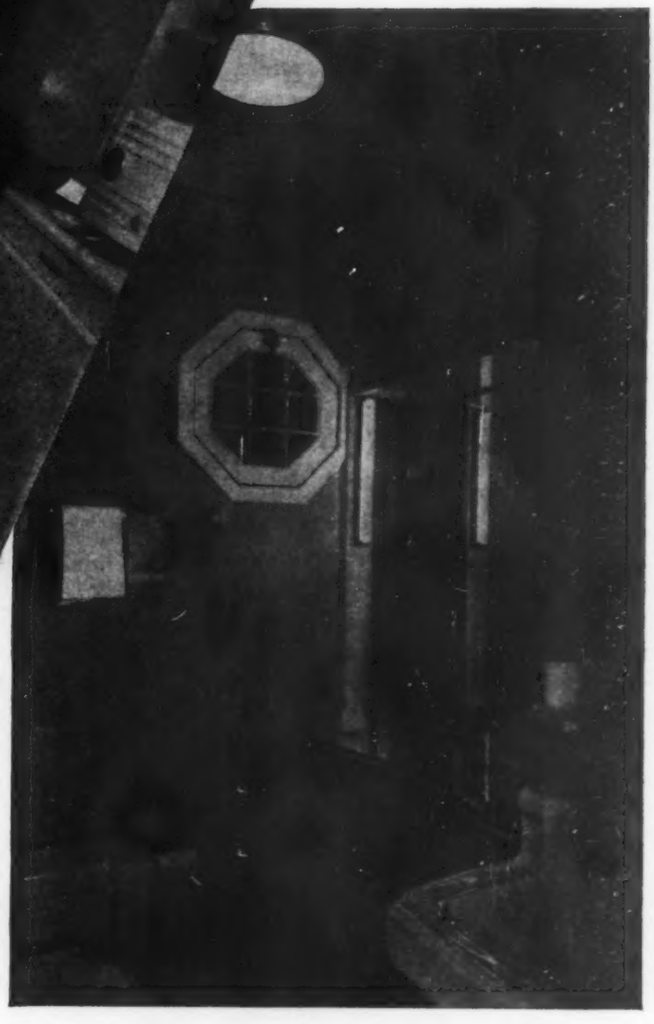
Oil, kerosene, gas and electricity were used for light, and if they made light a little better than that of the pine knot and tallow candle, it was thought to be sufficient. The sewing machine made a hundred stitches where one had been made by hand; but every stitch had to be watched. There are hundreds of pages of reading matter where there had been one, or very few, a hundred years ago. And yet, many people think that if the light was good enough for our fathers to mend harness by, it is good enough for us to use in studying books or reading papers today.

GOOD LIGHT IS AN ADJUNCT TO HEALTH, EFFICIENCY AND COMFORT IN THE HOME, AND IT SERVES, TOO, TO EMPHASIZE THE BEAUTY OF HARMONIOUS COLORS AND ARRANGEMENTS.

A MODERN, WELL LIGHTED KITCHEN IS THE HOUSEWIFE'S JOY.

The lack of good light in the home bears most heavily on the school children. The limited periods of daylight out of school hours and after chores are done are needed for outdoor light and air, to maintain any decent standard of general health as well as to preserve ambition and keep up success in school studies. The school curriculum compels study out of school, with or without help from older members of the family. When the group gathers around the evening lamp the old people with failing vision must have the best light. The father and mother have important work to do. The school children must make the best of what light is left for them. Everybody will admit that there must be space for all to get into the room and air enough for all to breathe.

IN THE MODERN HOME THE POWDER ROOM OR LAVATORY, WHICH DOES NOT RECEIVE MUCH NATURAL LIGHT, IS ADEQUATELY ILLUMINATED THROUGH ARTIFICIAL MEANS.



Any one who doubts that we need better light should get the finest print he can find and try to read it by such light as our fathers used to have; or he may look at the hairs on the back of his hands by such light and then hold the book or the back of his hand in the sunlight in the middle of the day. He can then understand how much easier it is to see in a good light. We do not have to look at the hairs or read the finest print all day. But to see clearly, quickly and easily makes a great difference for the kinds of work we do need to perform all day and every day.

But for the eyes of children, who will need to use their eyes for a whole lifetime, there is often only enough light left to allow them to get crosseyed or nearsighted. The first requirement for light in the home is to have enough of it, either in one room or in as many rooms as are needed.

There must be enough light, and it must come from the right direction. Through long years of evolution we are visually adapted to daylight conditions. It surely is provided in bounteous amounts, and it comes from the enormous sky area overhead. The bones of the forehead, the eyebrows, the longer upper lashes, the ease of tilting the head a little forward or turning slightly one side or the other will always protect the eyes from the direct light of the sun. The things we must see are mostly below the level of the eyes, where they can be seen most distinctly by light coming from above or the side. This is just as true in the homes as it is outdoors.

Light with which to see should come from above the eye level. Ornamental lighting, usually low in intensity, may of course be placed wherever the artist chooses, but light to see by should shine down on the things to be seen. Light to see what is in a room should come in goodly proportion from the ceiling and upper part of the room. A hundred years ago, when photographs were taken on films that were only slightly sensitive to light, every photographic studio needed a good skylight. Now, with more sensitive films, brilliant electric lights and flashlight powders the skylight is not needed. But to see in the home the eye has not become more sensitive than it has always been or than it was when we lived all day outdoors; and the bones of the face, the eyebrows and the eyelashes are the same as they were. Nevertheless with living indoors we have made the light in the home much worse than it need be. Perhaps it was to protect our carpets and draperies from fading that we hung shades before the windows to keep out the light. These were always hung so that they would exclude light at the top of the window, where it would do most good for seeing in the room, while it let us peep out below to see, by the help of the light from the sky, what was outside. We must learn that our vision is more important than the color of draperies and ornaments.

In the home we must have the light which gives the eyes the best help to do their work. If the sun shines directly on the window, there should be a light shade that will not keep the light out but will diffuse it evenly throughout the room. This will prevent glare on the floor or table top and increase the light in the poorly lighted parts of the room. The direct sunlight in the room varies with the exposure of the room and the time of the year. The sun shines on a north window only near sunrise and sunset, if at all. In a south window the elevation of the sun at noon varies; in Chicago, it changes from 25 degrees in December to 70 degrees in June. But the direct rays from the sun comprise much more than half the daylight. The rays refracted by the air or reflected by air, sky or clouds make up about 20 per cent. In many windows more light gets in when the leaves are off the trees than when the sun is high in summer. These things must be borne in mind for any room that is used during the day.

Artificial light, although weaker and more expensive than daylight, may be more perfectly distributed to serve the purpose of vision. The requirements of having enough light coming from the right direction are as important for it as for the sunlight. There is the most light for use when it falls squarely on the thing looked at, generally on the paper. But when the paper is highly finished, or "shiny," there is a reflection of the light like the reflection from a mirror that makes it harder to see the print. To get rid of this the paper must be inclined so as to throw that reflection somewhere else away from the eyes. When reading a book, if the curve of the paper makes a reflection from the top to the bottom of the page, a change in the inclination of the book will throw that dazzling reflection either below or above the eyes.

A slight change in position of the lamp with relation to the book will assist the whole problem of reflection from shiny surfaces. This is further greatly alleviated by the newest design in lamps, which provides a diffusing bowl underneath the shade which so breaks up the light rays as to soften the reflections and produce a more comfortable lighting result on the reading surface.

Another factor that must be considered with artificial light is the distance of the light from the thing illuminated. The distance of the sun varies so little that it does not have to be considered, but for sources of artificial light the distance is extremely important. When Abraham Lincoln read at night, with the book in one hand and a candle in the other, if the page was 1 foot away from the candle, he had 1 "footcandle" of light; but if there was a blurred letter and he brought the candle to 6 inches, half the distance from the book, he got 4 footcandles of light. If a boy puts his book on the floor to read by the light from a 100 watt lamp in the ceiling, 10 feet from the light, he gets only 1 footcandle of light. If he had the book 1 foot from the light, he would get 100 footcandles or more, and if he held it in the normal position, about 2 feet away from the shaft of the lamp, he would get more than 20 footcandles. The light varies inversely with the square of the distance. *(Continued on page 62)*

HONEY— The Oldest Known Sweet

By HARRIET MORGAN FYLER

HONEY, THE ONLY SWEET known to the ancients, was regarded as one of nature's most precious foods. When Joseph's brothers went to Egypt for corn, Israel commanded them "to take of the best fruits in the land in your vessels and carry down to the man (Joseph) a present; a little balm, a little honey, spices and myrrh."

When a Roman lady wished to delight her family she had the slaves roast the meats with honey, bake honey directly into bread and prepare a honey dessert. Roman dinners would not have been feasts without honey.

The roster of honey's uses in cookery is endlessly diversified. Honey may replace sugar in almost any kind of baking: cakes, cookies, bread and rolls. Honey has a hygroscopic tendency; that is, a tendency to draw moisture from the air. This is the factor that helps to keep bread and cakes fresh. But this tendency along with its difficult crystallization handicaps the use of honey in candy making. The moisture it attracts keeps the candy soft and sticky. Ice cream recipes, especially recipes for parfaits and for those ice creams which can be made in a refrigerator, are enhanced when honey is used as the sweetening ingredient. On hot days a good refreshment is lemonade sweetened with honey. On cold days an eggnog sweetened with honey and well spiced is more than just good—it's matchless.

Honey is especially convenient in serving up quick snacks. It can be served with cream cheese and crackers. Honey with tart fruit, cottage cheese, and plain bread and butter is delightful. Sandwiches with a filling of mixed chopped nuts and honey cannot be surpassed, nor can sandwiches using baking-powder biscuits in place of bread, with cream cheese and honey as a filling. One of the best ways to use honey is creamed with butter on hot biscuits or waffles.

The principal ingredient of honey is sugar. Plants everywhere produce sugar with great prodigality, using it for their own food, building from it their supporting structures and changing it to starch for later use. The energy for these processes is derived from the sun's rays. Out of this bountiful supply some plants secrete a few drops of nectar, never representing more than a minute fraction of their total sugar production. Small as this fraction is, the nectar provides foods for many species of insects, among them honey-bees. Its colonial and collective behavior in gathering makes the honey-bee the most efficient storer of nectar.

The manufacture of honey begins with a field bee that pumps the nectar from flowers through its proboscis and stores it in its honey stomach, which is similar to the crop in other insects. When it returns to the hive the field bee regurgitates the nectar, and the younger bees proceed to ripen it. The most elementary part of ripening nectar is the reduction of its water content, which runs as high as 80 per cent. The bees manage this by ventilating the hive, one group fanning the dry air into the hive, the other fanning the damp air out.

Bees effect chemical changes in the sugar of the nectar they bring to the hive, transforming it into several kinds of sugar: ordinary sugar (sucrose), grape sugar (dextrose) and fruit sugar (levulose). Honey contains only a little sucrose, ordinary sugar—less than 2 per cent. The amount tolerated under the administration of the Federal Food and Drugs Act is not to exceed 8 per cent. There is present in honey as a rule slightly more fruit sugar, levulose, than grape sugar, dextrose. Levulose is the sugar that ordinarily does not granulate. It is the relatively high levulose content of honey that retards granulation or crystallization. Levulose greatly increases the sweetness and desirability of honey because it is a much sweeter sugar than dextrose or sucrose.

Honey also contains small quantities of dextrin and gums and of such minerals as iron, calcium and phosphorus, though not enough to make it an important source of these minerals in the diet. It has no detectable vitamin value. Its characteristic flavors are derived from the complex materials it contains.

Like sugar, honey is a fuel food, supplying energy for work. One pound of it has an energy value of 1,480 calories. A pound of ordinary sugar supplies 1,850 calories. Honey is not a

tissue-building food like meat and eggs. In common with other sugars it is more quickly transformed into bodily energy than any other type of food. In fact, experiments show that the body begins to burn sugar almost instantly on its entrance into the stomach. This is why honey is such a good food for romping children, fatigued persons, workmen and athletes.

Special virtues have been assigned to honey. Often it is thought mildly laxative, especially in the diet of young children; but the amount consumed by adult devotees has inconsequential effect. One often hears that honey contains "predigested" sugar; but as a healthy person can digest any sugar as readily as another, "predigestion" is no special merit. Another fallacy is that honey has a place in the diabetic diet; but in reality honey is no different from any other sugar in its effect on the diabetic.

Choosing honey at the store is entirely a matter of taste. Honey is as variously flavored as wine. There is honey that is bland and mild, and honey that is rich and heavy. The United States provides some 250 varieties, but of these only about 25 are commercially important. Practically all commercial extracted honey is blended.

Honey is usually marketed as extracted honey and comb honey. The extracted honey can be purchased in 6, 12, 16, 24 and 32 ounce glass jars and in 2½, 5, 10 and 60 pound tin pails. It is generally cheaper to buy extracted honey in tin containers and to buy it in large quantities. Comb honey usually costs over 50 per cent more.

The first thing an ambitious cook wants to know about honey cookery is how much honey will replace an equivalent amount of sugar and how much liquid should be subtracted from the original recipe to make up for the water in the honey. The answer is not simple, for the following reasons:

1. Honey is heavier than sugar; for example, 1 cupful of sugar weighs 200 Gm. (grams), and 1 cupful of honey 338 Gm. It cannot, therefore, be substituted for sugar, measure by measure. To obtain parallel sweetness, one-fourth more honey by weight should be used or three-fourths as much honey as sugar by volume.

2. One cupful of honey is approximately 75 per cent sugar and 18 per cent water. The rest is composed of dextrins, gums, ash, pollen and certain aromatic compounds. The moisture content of honeys varies from 12 to 20 per cent, chiefly because of such factors as the plant source, the soil and atmospheric humidity, the altitude and the manner in which the honey is produced and marketed. As a general rule, however, for each cupful of honey used, approximately 4 tablespoonfuls should be counted as liquid and subtracted from the liquid allowed in a recipe.

3. Honey contains more fruit sugar, or levulose, than ordinary sugar. Fruit sugar does not crystallize readily. For this reason when honey is substituted altogether or in part for sugar in candy and cake icings a longer cooking time is required, and a longer beating time is required for the candy or icing to set.

4. All honeys contain some acid, which varies in amount. When honey is substituted for part of the sugar in cakes, the acid must be neutralized with baking soda. Approximately one-fourth to one-eighth teaspoonful soda is required for each cupful of honey.

5. High temperatures change the flavor of honey: the essential oils evaporate, and the sugars, especially the fruit sugar, are easily caramelized. For cakes or other baked products made with honey the oven temperature should be about 20 degrees Fahrenheit lower than when ordinary sugar is used. Likewise, the time of cooking cakes should be extended for ten or fifteen minutes.

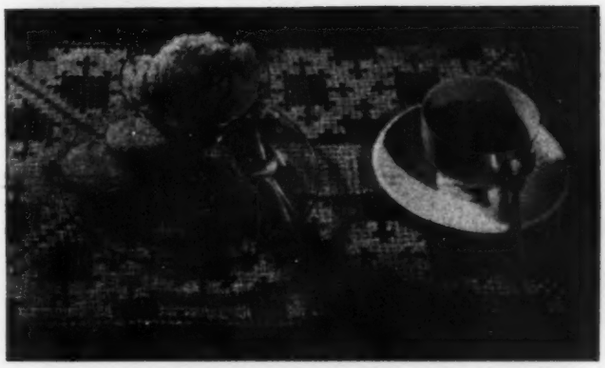
Alternating honey with sugar in tried recipes opens a vista of flavorsome dishes. After all, what makes food more appetizing than flavor and variety? And what is more wholesome than appetizing food? Honey recipes which have been tried and found good are given herewith.

A special honey dispenser is beneficial in measuring small quantities of honey. If the measuring cup or spoon is coated with a film of fat, the honey will not stick. In recipes where fat is indicated it is easier to measure the honey in the same cup and spoon used in measuring the fat.

PEANUT BUTTER COOKIES

1 cupful honey
½ cupful brown sugar
1 cupful peanut butter
1 cupful fat
2 eggs
1 teaspoonful vanilla
1 teaspoonful salt
1 teaspoonful soda
1 teaspoonful baking powder
2 cupfuls pastry flour

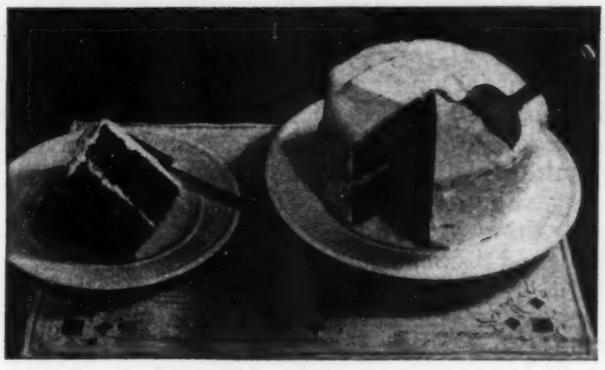
Cream honey, brown sugar, peanut butter and softened fat. Add eggs and vanilla. Add sifted dry ingredients. Mix thoroughly. Drop cookie dough (1 teaspoonful at a time) on cookie sheet, and pat out with a fork. Bake 12 to 15 minutes at 350 F.



Honey Mousse

1 teaspoonful gelatin
2 tablespoonfuls water
½ cupful coffee
2 cupfuls whipped cream
½ cupful honey
1 cupful nuts

Soften gelatin in cold water; dissolve in clear, black, hot coffee to which the honey has been added. Cool until slightly jellied. Fold in whipped cream and nuts. Freeze in refrigerator with control at the lowest temperature position for about 2 hours.



Honey Chocolate Cake

½ cupful sugar
⅓ cupful honey
½ cupful fat
1½ cupfuls cake flour
2 teaspoonfuls baking powder
½ teaspoonful salt
1 teaspoonful soda
1 teaspoonful vanilla
¾ cupful sour milk
2 eggs
2 squares chocolate

Measure all ingredients. Add soda to honey, and stir thoroughly. Place fat in mixing bowl; cream the fat until soft and fluffy. Add the sugar gradually, and cream until the sugar crystals are dissolved. Add the flavoring. Add honey, in which has been dissolved the soda. Separate the yolks from the whites of the eggs. Add yolks to the mixture of sugar, fat and honey, and beat thoroughly. Add the chocolate, which has been melted over warm water, to this mixture. Sift together flour, baking powder and salt. Add the sifted dry ingredients alternately with the milk. Begin and end with the addition of dry ingredients. Fold in the egg whites, which have been beaten until stiff but not dry. Fill oiled pans two-thirds full, and bake in a moderate oven (325 F.). Remove from pans, and allow to cool on a cake rack before icing.

Honey Icing

2½ cupfuls sugar
½ cupful honey
½ cupful water
2 egg whites
2 teaspoonfuls vanilla

Mix sugar, honey and water. Cook to 242 F., the hard ball stage. Add one third of this mixture to the stiffly beaten egg whites, beating constantly. Cook remainder of sugar-honey mixture to 248 F., the firm ball stage, and add to egg mixture. Add vanilla, and beat until cold. This honey icing is suitable for plain, spice and chocolate cakes. It will remain in good condition and soft enough to spread for weeks.

Honey Parfait

1 cupful honey
5 egg yolks
2 cupfuls whipped cream
¼ cupful lemon juice
¼ cupful orange juice
1 tablespoonful gelatin
2 tablespoonfuls water
Grated rind of 1 orange

Beat egg yolks slightly. Heat honey and grated rind of orange to boiling point. Pour honey slowly over egg yolks, beating continuously. Cook mixture in double boiler, stirring constantly until thick. Add orange and lemon juice. Cool. Fold honey mixture into the whipped cream. Place in refrigerator with temperature control at lowest position for 2 hours.

Honey Taffy

½ cupful honey
1½ cupfuls sugar
¾ cupful water
2 teaspoonfuls butter
½ teaspoonful vanilla

Heat sugar, honey and water, stirring until sugar is dissolved. Cook without stirring until mixture is brittle when tested in cold water, or to 270 F. Add butter and vanilla, and pour into greased pan. Cool; then pull. Cut, and wrap in waxed paper.

Honey Pecan Rolls

1 cake compressed yeast
4 tablespoonfuls water
1 cupful milk
¼ cupful honey
1 teaspoonful salt
¼ cupful fat
2½ to 3 cupfuls flour
1 egg

Soften yeast in water. Scald milk, and pour over honey, salt and fat. Cool mixture to 110 F. Sift 1½ cupfuls of flour into large bowl, and add liquid mixture. Beat batter 8 minutes with wooden spoon. Add dissolved yeast. Beat thoroughly. Let rise in warm place (85 F.) until light and bubbly. Add unbeaten egg. Beat mixture thoroughly. Add enough flour to make a dough which can be handled on a board. Knead on lightly floured board until dough is smooth and elastic to the touch, small bubbles appear on surface, and dough does not stick to board. Place in oiled bowl. Let rise until double in bulk. Roll dough, ¼ inch thick, into rectangle, 6 by 8 inches. Spread with honey butter (1 cupful honey and ¼ cupful butter mixed until creamy). Sprinkle with pecan halves. Roll and cut in 1 inch rolls. Let rise in oiled pan until light. Bake at 350 F. about 20 minutes. Watch oven, as honey burns easily.

LIGHT IN THE HOME (Continued from page 58)

The general illumination of a room may be good if it is only 5 or 10 footcandles. But for the average close work done in the home, from 20 to 50 footcandles locally will be needed. A room which in a general way may seem well lighted may have poor light by which to read or sew. The best way to meet the situation is to have, in addition to the general lighting of the room, local lamps placed in each furniture grouping and placed so that the light source is not more than 3 feet away from the seeing task.

Desks always need their own specific lamp, and today the newest desk lamps incorporate the diffusing bowl beneath the shade and are carefully designed in height to produce effective lighting over the whole desk area. If several persons must work in one room, a minimum of four portable lamps, in addition of course to the general lighting referred to, must be provided. The lighting results are then excellent, and the expense, both for lamps and for electric current, is in no way out of proportion in terms of their benefits.

In planning a home, functional and useful lighting should naturally be considered first, although there is great opportunity for lighting in its purely ornamental and decorative sense. One's imagination can take interesting flights in working out fascinating effects from this purely ornamental standpoint, although their place should definitely come after the lighting has been cared for thoughtfully to produce the greatest comfort and convenience.

There are also, of course, many places in the home where relatively lower amounts of light prove highly satisfactory. These places are where no close or exacting eye work is being done, although where seeing must be safe, such as in basements, stairways, passages and closets. Here lamps and fixtures must be strategically placed and must be controlled so that safety is always assured. Many of the serious accidents in homes are due to poor lighting, and these accidents are needless and can be readily avoided by careful thought to the lighting plan.

In a word, persons planning a home to live in should give thought to the details of every part. Many accidents are due to poor lighting. Stumbling or falling, breaking a limb or a vase or receiving a fatal injury may be easily prevented.

It is unfortunate that so many architects lack training and information about the lighting of homes. Persons planning a home to live in should give thought to the details of every part. They should find out what is a good light for each thing to be done in the home and arrange for good light wherever it will be needed for health, efficiency and comfort. Beauty will be secured by adequate lighting of the harmonious colors and arrangements of the objects seen. Light brings life and joy to the world. Let the home have its full share.

FORECAST

Of course, this sign of the zodiac and Valentine's Day probably don't have any connection—but they do both happen in

FEBRUARY

Hygeia's advice is: "Don't be a fish"—either about your health or about your happiness. Read

Dr. Thurman B. Rice's searching discussion, "The Choice of a Marriage Mate"

"I'm Not Afraid of Cancer!" a self revelation by one who has had good cause to fear it

"Outwitting Arthritis" by *Billie Louise Crook*

Further exposés of "Modern Medical Charlatans" by *Dr. Morris Fishbein*

"The Eyes in Industry," an important contribution to sight saving by *Dr. Conrad Berens*

"What the Decades Do to Heart Disease and You" by *Dr. Louis Faugeres Bishop Jr.*

Jimmy and the Diphtheria Germs

THE DOCTOR'S ARMCHAIR STORIES: IV

By Fred O. Tonney

DR. SMITHIES yawned comfortably as he sat back in the big armchair after supper, absently watching the smoke wreaths as they curled lazily overhead. The only light in the room came from the glow of his pipe and of the dying embers in the fireplace.

Sonny had crept into his dad's lap and lay half dreaming—waiting. The boy spoke. "Dad, I've been kind o' worried all day. You see, my new pal wasn't down at school at all today or yesterday either. He lives way up on Crescent Hill, you know. What do you suppose is the trouble, Dad?"

"What's his name, Son?"

"Jimmy Waters."

"What's that? *Waters,* you say?"

"Yeah, Dad, Waters. What's so funny 'bout that?"

Dr. Smithies puffed on in silence while the boy waited uneasily. Finally he said, "Well, Son, I guess it's Jimmy our story is going to be about tonight."

"Jimmy! You mean Jimmy Waters?" He was frightened.

"That's right! Jimmy Waters!"

Sonny could hardly contain himself. "Why—why—you know, Dad, he's my very best pal! Anything the matter with him?"

"Plenty! But don't you worry, Son. Jimmy's going to be all right, if *my* guess is any good!"

"What's he got, Dad?"

"Diphtheria!"

"Diphtheria!" Sonny echoed. "That's bad, isn't it, Dad?"

"Sure is! Unless it's caught quickly." He paused. "But just you quit worrying about Jimmy, Son. He's going to be all right, thanks to luck and everybody helping!"

"Is that where you were today—up on Crescent Hill?"

"Sure thing, Son, just about all day! Had a call early this morning. He'd been bothered with a sore throat, a couple of days. Wasn't very sick, you know. They *never* are at first!"

He blew smoke rings and watched them as they floated off dimly into the darkness overhead. Then he continued, "I looked at Jimmy's throat, and sure enough there it was! Just like old times! A grayish white membrane on one tonsil—spreading—with red edges. A funny smell, too, in the room and on his breath! 'Diphtheria,' says I to myself, 'just like we used to have in these parts.' Hundreds of cases! Then there was the fever, kind of low but not seeming serious! Treacherous it is, this diphtheria, Son!" He paused, "But it's not fooling me any! I know it of old!" He smoked on in silence.

"What did you do for Jimmy?"

"Well, Son, your pal Jimmy had a close squeak! Of course it was only the second day of his sickness when I was called. *That* was good. If it had been the fourth or fifth day or later, well, it might have been different. But even so, it looked as though Jimmy was out of luck at first!"

"Why, Dad?"

"We couldn't get any antitoxin for him, that's why!"

"Antitoxin?" Sonny's face was blank.

"That's what cures diphtheria, Son. But the fool disease has been so scarce around here lately that there wasn't any antitoxin to be had for Jimmy anywhere around."

"Didn't the drug store at the corner have it, Dad?"

"No sir! Not a drop! And I phoned everywhere I could think of! You see, it's been five years since we had a single case around here. So why should the druggists keep antitoxin in stock? No reason at all, I'd say. But there we were: Jimmy had diphtheria—and no antitoxin to be had anywhere!"

"So what then, Dad?"

"Well, Jeremiah, the druggist, and I got our heads together, and first we wired to Philadelphia for the antitoxin to be sent, pronto, by air mail. And then, after about an hour's wait, I phoned long distance to a friend up there in the laboratories. He wasn't in. Then about that time, Jimmy's dad breezed into the drug store."

"He's a pretty big guy, isn't he?" interjected Sonny. "Lots of money and everything?"

"Yes, Son. He's got plenty of it all right!" The smoke curled slowly upward. "I told him what we were up against—his boy desperately sick and no antitoxin anywhere! He said 'Get

it! I don't care if it costs a million. You get it for me quick! Jimmy's what counts!' "

The doctor paused.

Sonny could hardly wait.

"Believe me, I called up my friend again right away long distance!"

"Did you get him, Dad?"

"Of course. This time, he was right there first off! I said, 'Charley, I've got a kid sick with diphtheria down here, and I can't get any antitoxin at all! Will you send me some right away? Never mind the cost; just send it!' 'How about an airplane?' said Charley. 'You could have it in forty-five minutes.' "

"Great! Send it!"

"Did he send it then, Dad?"

"Yep! he did! In—oh—not more than *thirty*-five minutes I heard a whir overhead, and then one of those queer looking autogyros landed right in the square, right in front of the drug store where we were—Jeremiah, Ben Waters and I!"

"Oh, Dad!" breathed Sonny.

"I grabbed the package of antitoxin and ran to the old flivver, leaving Ben Waters to settle with the pilot. It must have cost him a pretty penny!"

"And did the antitoxin help Jimmy?"

"Oh, sure, Son. In a couple of hours Jimmy was a different boy! He was breathing easily and looking a lot more like himself. And when I looked at that diphtheria membrane in his throat it was just sort of melting away, like a snow drift when the sun comes out!"

"You think Jimmy's going to be all right, Dad?" asked Sonny, anxiously.

"Of course, Son. He got his antitoxin in plenty of time—only sick two days, you know."

"Will he get well? 'Cause I need him for a pal, you know!" Sonny's brows were wrinkled.

"Forget it, Son. I've seen a lot of them. And I'm telling you, Jimmy's coming out all right!"

Sonny breathed a sigh of relief, "I don't mind the six marbles I won from him that he hasn't paid, if he'll just get well," he said. They sat in silence for a moment while the logs crackled

ALL AT ONCE THERE WAS A WHIR OVERHEAD, AND THEN AN AUTOGYRO LANDED IN THE PUBLIC SQUARE RIGHT IN FRONT OF THE DRUG STORE WHERE WE WERE WAITING FOR THE MEDICINE.

and the bright flames flickered gaily in the fireplace.

"But, Dad, why shouldn't the druggist have any diphtheria antitoxin around here?"

"Oh, because most of the time nobody needs it. There hasn't been a case of diphtheria in these parts for more than five years. That's why! Reason enough, I guess. Why should they keep it in stock, when we don't need it?"

"But, Dad," curiously, "why *is* that? Doesn't diphtheria get around 'most everywhere?"

"Sure it does, Son, unless it's prevented."

"How do you mean, Dad?"

"Well, I guess we can thank Dr. Elston, the state health officer, for our not having had any diphtheria here for so long. He was eternally after us doctors to give the kids toxoid!"

"But did you do it, Dad?"

"Sure we did, he was so everlastingly at us. I guess we got about every kid around here inoculated."

"Is that why we kids haven't had any diphtheria for so long?"

"'Course it is, Son. Doc Elston did a good job!"

Sonny thought for a moment. Then, a poser! "Well, Dad, why did *Jimmy* get diphtheria?"

"You're a smart boy," his dad conceded, "but here's the point!" Then he changed his mind, "Or suppose I ask *you* a question?"

"All right," Sonny readily agreed.

"How long's Jimmy been here?"

"Oh, about a month," answered Sonny.

"Where'd he come from?"

"From somewhere out West."

"Do you suppose they knew anything about this new diphtheria toxoid out there?"

"I dunno," answered Sonny. "I guess maybe not."

"Well, most people do know about it by this time, but Jimmy's family didn't," declared the doctor. "I asked the whole family. They'd never even heard of it." He paused. "So it stands to reason that Jimmy hadn't ever been protected against diphtheria as all you other youngsters here have. So that's the reason he got it!"

Sonny was thoughtful. "Have I been protected, Dad?"

"Sure you have—with toxin-antitoxin—way back when! I saw to that in the old days! You were too young to remember, I guess. Just a year old!"

"And now I can't *get* diphtheria—even if I go to see Jimmy?"

"Nope! Remember I made a Schick test on your arm about two months ago?"

"Oh, yeah," said Sonny. "And nothing showed up at all." He hesitated, "I was waiting to see a nice red spot on my arm that I could show the other kids, like Jamie Murphy got! But I didn't get a thing. Why was that?"

DIPHTHERIA IS SCARCE HERE BECAUSE THE STATE HEALTH OFFICER IS ETERNALLY AFTER US TO GET EVERY CHILD INOCULATED.

"Because you couldn't get diphtheria if you wanted to! You're what's called 'immune' to diphtheria."

"Well, are all the other kids around here that way too, Dad?"

"I guess they are, thanks to Dr. Elston. He certainly did a good job! That's the reason diphtheria's so scarce hereabouts. Why, if I hadn't seen it so much way back in the old days, I might have missed it in your pal Jimmy, and then . . . he hesitated.

"He'd have died, maybe, you mean?"

"Yes, Son. Diphtheria's just plain vicious that way. A bad actor—and *do* I *know!*" The old man sighed.

"How's that, Dad?"

"Well you see, Son, years ago I lost my little brother—about your age, he was!" He paused, puffing his pipe reminiscently.

"From what, Dad?"

"From diphtheria, Son."

"Oh, Dad!"

"It's kind of hard to forget!" the old man continued reflectively.

"I bet it is," said Sonny.

"There we were—all trying our best to help him with gargles or throat sprays or hot packs or applications on a swab that the doctor gave—but—" his voice trailed off.

"What, Dad?"

"Well, Son, as I see it now, not a single thing we did then for my little brother was any good at all! Nothing! He was just doomed, that's all!" The old man puffed on, regretfully.

Sonny was astonished. "But, Dad," he wanted to know, "couldn't you give him some antitoxin? Why didn't you?"

"Nobody knew a thing about antitoxin then. There wasn't any; that came later—years later."

"Oh! Then there just wasn't anything at all you could do to save him?"

"That's right, Son, nothing at all! Those that got diphtheria either died—or they lived, no matter what was done for them. And about half of them died. Of those that got over it, a good many *(Continued on page 94)*

SCHOOL and HEALTH

Conducted by J. MACE ANDRESS, Ph.D.
67 Clyde Street Newtonville, Mass.

BUILDING THE HEALTH CURRICULUM IN THE HIGH SCHOOL: V

AGAIN WE FIND the faculty of the Queenstown High School assembled for the continuation of the discussions on the promotion of the health of their pupils. Mr. Richards, the principal, is opening the discussion:

MR. RICHARDS: Several of you have expressed your hearty appreciation of our last conference. Miss Phillips, our visiting teacher, has given us an intimate insight into the character of her work so that we may cooperate with her more intelligently. She deals actively with problems relating to the physical and mental health of our boys and girls. We know that she is concerned especially with individual pupils who for some reason are not adjusting themselves to the conditions required by the school. Through her careful investigations she gets a many-sided view of a problem and coordinates our efforts in wise guidance. In such a capacity she plays the part of a friend.

Today we have as our leader, Mr. Strong, the head of our department of physical education. What we know about his work makes us anxious to know more.

MR. STRONG: I think you know that in the newer trends of education today physical education is beginning to have its innings. There has been a distinct prejudice in schools against physical activity. It goes back over the centuries. Its greatest enemy was asceticism. This doctrine held the body in contempt. It asserted that mental and spiritual excellence depended on bodily debasement. Although modified through many years, the life of the scholar has been too closely identified with asceticism. Generally people do not have as much zeal for the development of the body as for that of the mind. There is now a growing conviction that one is as important as the other.

MR. WARD: For the purpose of argument may I ask whether you think that the activities of a boy or girl in physical education are to be compared in educational value with the work in history or mathematics?

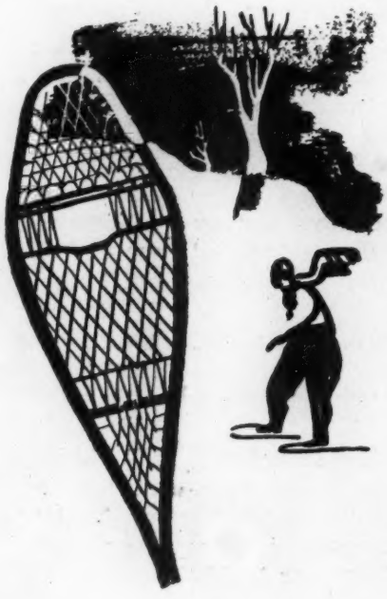
MR. STRONG: Yes, most emphatically! We are now thinking of education in a broader way as something that involves the relation of the whole individual to his complete environment. Teachers and parents are talking more and more about sending the whole boy or the whole girl to school. We can hardly think of a student of mathematics as being educated if he has no interest in wholesome physical activities in the open air. Nor could a student skilled in the science and art of playing games but without some knowledge of mathematics and the so-called cultural subjects be regarded as having a well rounded education. To meet the world happily and successfully most people need both kinds of training.

MISS ROGERS: Is it not true that your program of activities consists largely in sports?

MR. STRONG: Yes, the boys engage in such sports as soccer, touch football, swimming, volleyball, basketball, handball, wrestling, boxing, ice skating, tennis and softball, and the girls go in for speedball, hockey, swimming, volleyball, social dancing, basketball and tennis.

MISS PHILLIPS: What an opportunity for fun, relaxation and growth!

MR. STRONG: Our physical education deals with positive health.



Vigorous exercise largely in the open air develops muscular strength, keen appetites, good digestion, healthy vital organs and good posture. Under the skilful teachers in our department, who themselves enjoy sports and young people, the boys and girls develop a keen interest in playing in the open air. This makes for joy and optimism. We have abundant evidence not only that our program in physical education is valuable while pupils are in school but that these wholesome interests are carried over to adult life, We believe that many of the goals in education may be stated in terms of interest as well as knowledge and skill. Can you think of anything more worthwhile for adults than interest and skill in outdoor sports that make leisure hours stimulating and health giving?

MR. RICHARDS: I think we shall all agree with you on the matter of interest. In my own case I must confess that set gymnastic exercises left me with a distaste for physical activities. My later interests in sports came from channels other than school and college.

MR. STRONG: One of my best helpers is Dr. Vanderhoof. Perhaps he will say a few words.

DR. VANDERHOOF: On the basis of the regular physical examinations we are in a position to make recommendations for particular pupils. It often happens that because of heart defects or other physical disabilities, pupils should be barred from certain physical activities. Under such circumstances we have the opportunity to plan programs with pupils and advise them about other matters in hygiene. It is important that pupils with defects get training in meeting their problems so as to keep their morale. We are especially careful about the examination of those who take part in vigorous games such as football and basketball.

DR. THOMAS: As a psychologist, I am deeply interested in the outcomes of physical education in terms of attitudes and character building. It seems to me that physical education has some unusual opportunities for such training.

MR. STRONG: I am glad to hear you mention these things, for so often people think of physical education in terms of mere muscle or animal superiority. Physical education should contribute to a student's total personality development and not merely to his physique. Physical education as carried on today is a form of social education. The boy or girl who takes part in sports must learn team play to be successful. This means the development of loyalty to the group, the subordination of self to the welfare of the team and cooperation. It fosters courage, self control, self sacrifice, courtesy, kindness, obedience, honesty and initiative. Probably one of the best outcomes of physical education at its best is the development of the proper spirit toward victory and defeat.

MISS WIGGINS: Do these outcomes necessarily follow? If so, are they carried over to other situations of life?

MR. STRONG: Those are good questions. No, unfortunately these outcomes do not always follow, but under the skilful leadership of our teachers and coaches we are sure that we achieve a certain amount of success. You would probably admit that there is so much realism about the playground that some of these qualities stand a better chance for growth there than in the more formal work of the average classroom.

As to the carry-over of these tendencies we must consult our general psychology. I believe it teaches that there is no royal road in the teaching of any trait. To develop cooperation and courage, for example, we must depend not on any one subject or activity but on all of them. If we can establish courage and cooperation not only in games and sports but also in Latin, mathematics and biology and in every situation that arises in the school, we shall stand a good chance to develop attitudes, skills and habits that will become generalized and go over into life situations outside of the school.

MISS THOMPSON: As a teacher of physical education, I think we have a better chance to get acquainted with individual pupils because we meet them more informally. Incidentally we teach a good deal of mental and physical hygiene. The pupil who wishes to succeed in sports will pay more attention to the suggestion that more sleep is desirable when the idea comes from the coach than would be the case if it were studied in a class in hygiene.

MR. STRONG: In closing our discussion may I summarize in part by quoting from Jesse Feiring Williams: "Physical education is a form of education. It is life and living. Its activities are to be engaged in because of the satisfactions they offer to him who participates. To him who enters the lists of its activities there should come as by-products health, skills, good posture, strength, endurance and the results so frequently sought as direct ends and so rarely gained."

BIOLOGY PROMOTES THE HEALTH PROGRAM

FRANCES K. PIPER
West Springfield High School
West Springfield, Mass.

The good high school curriculum promotes instruction and training in health directly and indirectly. One indirect method is through the different subjects. Miss Piper illustrates how a course in biology may meet the usual requirements of such a course and at the same time contribute effectively to health education.

HIGH SCHOOL biology offers a fertile field for health teaching, stressing particularly the relationship between environment and health. There is scarcely a chapter in the textbook that doesn't naturally drift into matters that concern the health of the pupil. A few examples will give an idea of the unlimited possibilities.

Prevention of disease may be discussed over and over again with never a repetition of the material, in such varied chapters as "Bacteria," "Protozoa," "Insects" and "Famous Biologists." Every biology book has constant reference to plant and animal nutrition, stressing the need in all living things not only for a suitable number of calories but also for the vitamins, minerals and other factors necessary for optimum health, in other words not only for a mixed diet but for a *balanced* one.

Since "health is more than freedom from disease," the chapters in the biology textbook devoted to the body framework allow a fine chance for discussion of correct posture, standing, sitting and walking; and by comparison with various animal anatomies, a definite reason can be shown why we develop postural defects that animals do not. The desired pupil responses are much more easily obtained under such circumstances, and the pupil begins to do some real thinking when postural defects are made vital to him.

Another phase of health teaching, somewhat neglected in recent years but seemingly due for more attention from now on, is the subject of alcohol. The biology laboratory is the logical place for the high school pupil to find out for himself the effect of alcohol on protoplasm. Let him perform his own experiments of combining alcohol with plant and animal protoplasm, and be assured that his results will be definite, his conclusions sound.

The teaching of sex hygiene, which will arouse tremendous controversy if attempted in any other class, may safely and suitably be taught in the biology classes, not as a separate unit but as part of the everyday work in the study of plant and animal life. No pupil can be ignorant of certain basic "facts of life" after discussions in biology class dealing with such topics as pollenation and fertilization in flowers; cell division in simple plants and animals; sexual and asexual generations in mosses and ferns; reproduction sexually and by budding in the hydra; exchange of sperm cells in earthworms; parthenogenesis in bees; external fertilization in fish; internal fertilization in higher vertebrates, and a sort of transition from external to internal fertilization in the frogs and toads.

When we stop to consider that all the aforementioned topics are found in that part of the textbook belonging to botany and zoology, while the usual textbook has at least one third of its contents dealing with physiology, it may easily be seen that the pupil who studies biology in the ninth or tenth grade has gleaned much valuable and long lasting health instruction.

TRAILER DENTISTRY IN INDIANA SCHOOLS

S. R. WINTERS

If children cannot go to the dentist, then the dental clinic may come to them on wheels; this was the decision reached by an alert state board of health. Mr. Winters tells how this clinic operates in the state of Indiana.

THE PRESENT era of trailer travel has fostered an innovation as applied to a novel but practical program of dental hygiene and treatment for children of school and preschool age in certain Indiana communities. Sponsored by the state board of health, the Maternal and Child Health Bureau has undertaken current small-scale education regarding the significance of competent dental attention, along with the actual practice of dentistry, and sends around a traveling dental unit for those chil-

dren of indigent parents who are financially unable to provide necessary care. The mobile dental office culminates a threefold plan combining instruction, organization and demonstration; it was first inaugurated in Green County, Ind., remaining in operation for some months. Later the unit was removed to another portion of the same county about 30 miles distant, namely, Linton, Ind., being located in the midst of a large group of children whose parents are dependent on relief. Both localities were chosen after a thorough analysis based on a statistical survey relating to agricultural and manufacturing income in the district, percentage of population on relief and approximate number of children within the age scope—3 to 10 years.

Quite naturally school cooperation has played an important role in all phases of the unique undertaking. Through the medium of an appointed educator who serves as an instructor, the state dental association and board of health have correlated their efforts toward impressing on children, parents and teachers alike the necessity for adequate dentistry. Visual education in the form of health films has been supplied for many schools, while attractive posters convey their graphic message during varied exhibitions. Lecture programs and distribution of free literature augment numerous stories and playlets written to deal with the vital subject.

In the work of organization the trained county public health nurse renders invaluable assistance to any dental program. As initial-examiner in the school system, she designates those patients requiring dental aid and also indicates their assignment to a private dentist or the traveling unit, as financial circumstances may signify. Her work is closely allied with county dental and medical societies, successful fulfilment depending in part on the cooperation and support of lay orders such as Parent-Teacher associations, the American Red Cross and similar agencies interested in problems pertaining to health promotion.

In operation, the third or demonstration unit completes the program for which instruction and careful organization have served as an effective build-up. Towns are visited by the trailer dental office, and underprivileged children between the ages of 3 and 10 are eligible for attention; patients of school age arrange appointments with the help of proper authorities. Treatment is limited to extractions, prophylaxis, amalgam and cement restoration or cavity filling, with all work in charge of a dental intern, who proceeds unassisted.

The clinic on wheels is towed by a regulation size coupe and attached to a turntable placed in the baggage compartment. Internally, the movable office is furnished with all conveniences necessary to the administration of efficient dentistry practice. Included in the equipment are a dental chair, a cabinet with instruments of latest design, a suitable laboratory, supply and linen chests, a sterilizer and modern lighting arrangements. The entire outlay was designed after similar outfits operating in both the Coast Guard Service and Indian reservations. Among the Indians approximately 20,000 out of a total 35,000 examined received dental treatment, preference being given to children.

With statistics revealing that Hoosier youngsters average from one to four cavities per mouth, authorities believe the new arrangement will improve the general health index of a community's children, in addition to preventing underprivileged boys and girls from being deprived of dental services otherwise denied them. Remotely, of course, adult health may be benefited somewhat, perhaps more especially through a newly created sense of "dental consciousness." This accomplishment assures even greater and more far-reaching results than temporary tooth restoration or preservation. Present aims detailed to the progressive clinic embody treatment of as large a child group as possible, at the same time allowing sufficient observation of public reaction to the project.

BODY BUILDING FOODS

ETHEL AUSTIN MARTIN
Director, Nutrition Service
National Dairy Council

That the chief business of the child is to grow is a truth which bears repetition among teachers. In the fifth article of her series on nutrition in our schools, Mrs. Martin shows the necessity for an adequate amount of protein in the diet. She presents some interesting information about proteins with which teachers are not familiar. What suggestions does Mrs. Martin have for your pupils?

OUR BODIES are often referred to as human machines. Last month we likened the body's method of deriving its energy from food to the way in which a machine transforms its fuel into energy. Aside from this strong similarity, however, the analogy is less exact. Who, for example, can imagine an automobile which, by merely being given plenty of gasoline, could increase its size, repair itself and change its model? And yet the human body has the remarkable capacity to convert certain food elements into body substance and thus to increase its weight from fifteen to twenty times in the period from birth to maturity as well as repair its own parts throughout life.

Two main types of body substances are supplied by foods; namely, hard tissues of the body, such as teeth and bones, and soft tissues, such as muscles and blood. In this article I shall consider in particular the building of certain soft tissues and the types of building foods which satisfy this need. Other aspects of body building will be discussed in two succeeding articles.

Protein Foods for Growth

For growth, which signifies actual increase in amount of body substance, a person must obtain a portion of his food from proteins, which belong to the class of foods known as body builders. In last month's article, proteins were classed as energy yielding foods. Thus they play a double role. The distinction between proteins and other energy yielding foods lies in their nitrogen content, an element essential to the body building function.

Proteins are composed of smaller units called amino acids, which are sometimes referred to as "building stones" of proteins. Twenty-three amino acids have been identified, and a single kind of protein yields at least sixteen or seventeen of them. Some amino acids are indispensable for the building of body proteins and hence for growth. Therefore those proteins which contain the largest number of indispensable amino acids in significant amounts are of the highest quality. Likewise those foods which contain proteins of the highest quality are the best body builders. Fortunately most protein-rich foods contain more than a single kind of protein, a fact which practically assures a liberal assortment of amino acids in an ordinary mixed diet.

Protein-Rich Foods

The chief protein-rich foods are those derived from animals, such as lean meats, milk and the products of milk. Cereals contain less protein, but because they make up so large a part of daily meals in various forms—bread, breakfast foods and baked goods—cereal proteins provide a considerable portion of the average person's daily protein intake. Vegetables and fruits are not important sources of proteins, although one group of vegetables—

(Continued on page 73)

TO AMERICA'S SCHOOLS YOUR HEALTH!

RED NETWORK

WEAF	New York
WNAC	Boston
WTIC	Hartford
WJAR	Providence
WTAG	Worcester
WCSH	Portland, Me.
KYW	Philadelphia
WDEL	Wilmington
WFBR	Baltimore
WRC	Washington
WGY	Schenectady
WBEN	Buffalo
WCAE	Pittsburgh
WTAM	Cleveland
WWJ	Detroit
WSAI	Cincinnati
WIRE	Indianapolis
WMAQ	Chicago
KSD	St. Louis
KSTP	Minn.-St. Paul
WHO	Des Moines
WOW	Omaha
WDAF	Kansas City
WLW	Cincinnati
WFEA	Manchester
WSAN	Allentown
WORK	York
WMBG	Richmond
WCOL	Columbus
WGL	Fort Wayne
WOOD	Grand Rapids
WBOW	Terre Haute
WGBF	Evansville
WEBC	Duluth-Super'r
KSOO	Sioux Falls
KANS	Wichita
WTAR	Norfolk
WPTF	Raleigh
WSOC	Charlotte
WFBC	Greenville
WWNC	Asheville
WIS	Columbia
WCSC	Charleston
WAVE	Louisville
WSM	Nashville
WMC	Memphis
WSB	Atlanta
WAPI	Birmingham
WJDX	Jackson
WSMB	New Orleans
WROL	Knoxville
WJAX	Jacksonville
WFLA-WSUN	Tampa
WIOD	Miami
KGBX	Springfield, Mo.
KVOO	Tulsa
WKY	Oklahoma City
KGNC	Amarillo
WFAA	Dallas
WBAP	Fort Worth
KTBS	Shreveport
KTHS	Hot Springs
KARK	Little Rock
KPRC	Houston
WOAI	San Antonio
KFDM	Beaumont
KRIS	Corpus Christi
KRGV	Weslaco
WTMJ	Milwaukee
WIBA	Madison
WDAY	Fargo
KFYR	Bismarck
KOA	Denver
KDYL	Salt Lake City
KPO	San Francisco
KFI	Los Angeles
KGW	Portland, Ore.
KOMO	Seattle
KHQ	Spokane
KTAR	Phoenix
KOB	Albuquerque
KFBK	Sacramento
KWG	Stockton
KMJ	Fresno
KERN	Bakersfield
KIDO	Boise
KGIR	Butte
KGHL	Billings

A NEW RADIO PROGRAM FOR SCHOOLS

THE American Medical Association and the National Broadcasting Company present each week over the Red network a program of dramatized health messages intended to furnish graphic supplementary material for health teaching in junior and senior high schools. Much of this material is also useful for elementary schools, especially in the higher grades.

The program is broadcast eaeh Wednesday from 2 to 2:30 p. m., eastern standard time, one hour earlier central time, two hours earlier mountain time and three hours earlier Pacific time.

Neither the American Medical Association nor the National Broadcasting Company has any control over local broadcasting, since this is a noncommercial program. Individual programs may be subject to cancelation for national or international emergencies calling for concentration of radio time in imperative public service. In such cases the subsequent dates will not be affected, but the canceled program will simply be dropped.

NEW YORK CITY SCHOOLS ARE TUNING IN

Dr. I. H. Goldberger, director of health education for the board of education of the city of New York, has informed HYGEIA that an experiment is being tried in certain of the New York high and junior high schools to determine, if possible, the approximate value of enriching one's knowledge in health education through the instrument of the health broadcasts sponsored by the American Medical Association in cooperation with the National Broadcasting Company.

A number of high schools, both junior and senior, have been selected to listen to the broadcasts during the first semester, while another group will not listen. At the end of the term, the students in the schools who have been listening to the program will be given an examination in the facts presented by the programs; the nonlistening group will be given the same examination. During the second term the rôles of these groups will be reversed; the listeners will become nonlisteners, and vice-versa. They will then be examined again in the same manner.

These examinations, in Dr. Goldberger's opinion, will form an interesting key to the value of the dramatized health broadcasts as supplements to regular health teaching in the schools. This is exactly what was hoped for when these programs were planned and announced. The large groups included in this study should go far to give it validity, by ruling out the effects of minor variable influences which cannot be controlled. It is hoped that other school systems will not only utilize the broadcasts as proposed by Dr. Goldberger but will seize the opportunity to make these broadcasts an instrument for study of the value of radio and the value of dramatization in health teaching.

HEALTH TEACHING HELPS BY RADIO

DATES AND TOPICS OF WEEKLY BROADCASTS
1938

CONTAGIOUS DISEASES

January 5—Sneezes and Sniffles: cause, spread, prevention of colds, pneumonia and influenza; importance of early medical care.

January 12—Scarlet Fever, Measles and Whooping Cough: modern attitudes toward these diseases; their prevention by community cooperation.

January 19—Smallpox and Diphtheria: unnecessary diseases; preventable by immunization of infants.

January 26—Poliomyelitis: information about the disease; cooperation with President's Birthday Ball.

PREVENTING FUTURE ILLNESS

February 2—Rheumatism and Arthritis
Known factors in the causation of arthritis and its care.

February 9—Healthy Hearts and Arteries
Known ways of protecting the heart against infection and hygienic abuse; how to live with heart disease.

February 16—Don't Fear Cancer—Fight It
Known factors in the cause, prevention and treatment of cancer.

February 23—Overcoming Diabetes
Individual efforts plus medical aid will win against diabetes.

PUBLIC HEALTH

March 2—Water, Waste and Sanitation
Importance of community control of water supplies, sewage disposal and general sanitary matters

March 9—Protecting Perishable Foods
What the community can and must do to protect fresh foods such as fish, fruits, vegetables, meats, bakery goods.

March 16—Keeping Books on Health
The meaning and the importance of vital statistics, contagious disease reporting and community health records.

March 23—Catching Disease from Animals
Rabbit fever, rabies, undulant fever and similar infections, and what can be done about them.

HEALTH EDUCATION

March 30—A Fool for a Day
Fallacies and popular beliefs that are not true and that influence behavior in a manner detrimental to health.

April 6—Living with People
Elements of mental hygiene; getting along with people; adjustment to the environment.

April 13—It May Happen to You
Accidents in the home and on the highway and ways to avoid them.

April 20—Who Chooses Your Doctor?
The characteristics of a reputable physician as distinguished from cults, quacks, fakers, faddists or exploiters.

MOTHERS AND CHILDREN

April 27—Healthier Babies
Daily routine of the healthy baby; medical supervision; feeding.

May 4—Healthier Mothers
General advice for the expectant mother; good for boys and girls to know about

May 11—Hospitals Aid Health
The place of the hospital in the health program of the individual and the community.

May 18—Runabouts, 1938 Model
The preschool child and the health and personality problems of that age.

USING HEALTH KNOWLEDGE

May 25—The Health Check-Up
Periodic health examination and what follows, and why.

June 1—Vacation Plays and Misplays
Making the vacation a real contribution to health and recreation.

June 8—Graduation and Then What?
A new phase of life begins at commencement, and health contributes to success.

June 15—What Medicine Offers for Health
Flashes from the American Medical Association meeting at San Francisco, giving highlights of medical progress.

SUGGESTIONS FOR TEACHERS

The following briefs of the fourth group of programs, together with the reading references and suggestions for things to do in connection with the programs, are intended as helps to teachers. The program itself is not intended to supplant health teaching, but to supplement it.

January 5: Sneezes and Sniffles.—This program will be devoted to the common cold and its complicating diseases, pneumonia and influenza.

The term "cold" is applied to a common affliction in which there is stuffiness or running at the nose, sometimes a sore throat, aching eyes and fever. It is most common in winter, spring and fall. Everybody gets one sooner or later; some persons get one almost every time they turn around.

There are a number of causes for a common cold. First of all, it is a germ disease, caused by a germ too small to be seen by the most powerful microscopes it has yet been possible to construct. Then how do we know it is a germ? We know because the fluids from the noses of persons suffering with a cold have been studied. In those fluids was something which gave colds to animals and other persons; which was killed by heat and certain chemicals, and which must have been alive because it increased. Like electricity, a force never seen, yet extensively studied, we know what this substance is even though it has never been seen.

Because it is so small, it is called ultramicroscopic; because it passes through the finest filters possible to devise, through which ordinary germs do not pass, it is called filtrable, and because it invokes damage, it is called a virus.

A cold is an infection with this ultramicroscopic filtrable virus and is spread from person to person by sneezing, coughing, kissing, careless use of the handkerchief or spray while speaking or laughing; by the use of badly washed eating utensils, or by pipes or musical instruments passed from mouth to mouth.

There is more to a cold than infection. In winter, when houses are heated and dry, the membranes of the nose and throat become dry, and colds are favored under such conditions. Too much clothing indoors (boys take notice) and too little outdoors (this advice is for the girls) also favor infection. Disturbed body chemistry, especially from a diet too rich in sweets and too poor in vitamins (fruits and vegetables to you) may be a factor. Badly shaped noses (inside, not outside), or growths in the nose may also have something to do with frequent colds. It seems to make little difference whether tonsils are in or out, but large adenoids make for frequent colds.

Prevention of colds consists in avoiding those who have them, and this ought to work both ways. Besides that, get plenty of rest, live in moderately heated quarters with moistened air if possible, and eat a sensible diet.

Treatment of a cold consists in going to bed after first taking a hot bath and a hot drink (not alcoholic). A cold will be well in three days if no complications are developing. If it is not improving at the end of twenty-four hours, call a doctor.

Complications of a cold, or repeated colds, include chronic infections of the nasal sinuses (older people often refer to this as catarrh); chronic infections of the nose and throat itself, ear abscesses at first and later loss of hearing and noises in the ears, loss of, or injury to, the voice, or those serious diseases, pneumonia and influenza.

Colds are important also because many of the other infectious diseases of childhood act like colds at first. If neglected and mistaken for a cold, these diseases may be spread about. Among such diseases are measles, diphtheria, scarlet fever, whooping cough and tuberculosis.

There is no demonstrated value in taking cold vaccines, but they are harmless. The same applies to eating extra vitamins over and above the good diet we have been dinning into your ears.

Pneumonia is of two kinds, lobar and bronchial. Lobar starts out suddenly and without warning. It usually follows exposure or chilling and is therefore most common in outdoor workers. Preventive measures are the same as those for colds. Treatment requires a doctor from the start. Serum treatment is helpful in certain types. The disease is classified by types, determined by laboratory examination of the sputum, with the aid of mice. Type I pneumonia is helped most by serum.

Pneumonia of the bronchial type usually attacks the old, the sick and the very young. It usually complicates other diseases instead of starting out fresh like lobar pneumonia. Bronchial pneumonia is most to be feared in measles, whooping cough, scarlet fever, influenza, neglected colds, broken bones in old persons, and young or weak babies. Prevention consists in good care and above all adequate convalescence in the diseases named. No serum amounts to anything in this form of pneumonia.

Influenza is a disease due to a particular germ, but many forms of infection due to other germs give similar symptoms. For practical purposes, influenza, or "flu," may be described as a disease with fever, great weakness, cough, a tendency to pneumonia of the bronchial type, slow recovery and a strong tendency to relapse. Some outbreaks are of more fatal type than others. In 1918 there was one such. Influenza is highly contagious. Nobody knows how to prevent it, but customary advice is to keep out of crowds, avoid fatigue, eat a sensible diet and keep your hands scrupulously clean, especially before eating; also avoid those who have it or anything resembling it. Get a plentiful supply of handkerchiefs in case you get it anyway. If you are so unfortunate, go to bed and stay there several days longer than you think you ought to, and don't get up until your doctor says you may. When you do get up, go slowly.

REFERENCES FOR TEACHERS

Texts previously suggested.

HEALTHFUL LIVING by H. S. Diehl. Price, $2.75. New York: McGraw-Hill Book Company, 1935. (Especially recommended for this lesson.)

THE COMMON COLD by Wilson George Smillie, M.D. Price, 35 cents. Pp. 77. New York: Funk and Wagnalls, 1937.

SUGGESTED PROJECTS

Start a year's census of colds for the class. Have every member put a slip in the box for every cold (no names on the slip), reporting how long it lasted, what was done for it, what complications occurred and what was the apparent cause. Study these slips as they accumulate, and then summarize them in the spring. Save the results for comparison with the next year's experience.

Find out what your community is doing toward saving lives of pneumonia patients. The standard measures are:

1. Laboratory facilities open to physicians for determining pneumonia types quickly.
2. Pneumonia serum, which is free under appropriate circumstances, available for all cases suitable for such treatment.
3. Prompt reporting of all cases of pneumonia.
4. Facilities readily available for oxygen treatment in suitable cases.

Check on your conduct when you have a cold (all answers should be yes):

1. Do you stay away from others to avoid spreading it?
2. Do you go to bed the first day and stay there until you are well?
3. Do you call a doctor at the end of twenty-four hours if you are not improving?
4. Do you refrain from using commercial drops, sprays and other so-called remedies?
5. Do you follow the doctor's advice about convalescence?
6. Do you use disposable tissue handkerchiefs or old muslin which can be burned, or take good care not to expose others to your soiled linen handkerchiefs?

January 12: Scarlet Fever, Measles and Whooping Cough.—These three important diseases of

childhood are grouped together because certain of the facts about them are so much alike.

All three diseases are dangerous; all are contagious; all are spread through the same means as the common cold (review previous outline for these points); all are most dangerous to young children.

Scarlet Fever: This is a disease due to a highly dangerous germ. The disease causes a sore throat, sickness at the stomach and a rash on the skin, from which it gets its name. Many cases are mild and may even pass unrecognized; these are the ones that spread it about. Some cases are severe. The skin usually peels after the first week; often this peeling is the first sign of the disease to be noticed. Complications are ear disease, sinus disease, kidney disease and heart infections. Because of neglect of treatment, in light cases which pass unnoticed complications are often worse than in severe cases well cared for. There is no sure prevention, but there has been considerable success in preventing the disease with injections of a preparation made from the germ itself and known as Dick toxin after the doctors who developed the method. A test called the Dick test, made by injecting a tiny dose of the same preparation into the skin of the forearm, tells whether or not a child is liable to have the disease. If the test is positive, larger doses are given to produce protection. The family doctor should decide whether or not this should be done.

Treatment is rest in bed with careful diet, especially plenty of fluids. In severe cases an antitoxin may be ordered by the physician; in mild cases this is seldom necessary. But even the mildest cases require careful nursing to avoid complications. Quarantine is at least four weeks and as much longer as the health officer thinks necessary; the family doctor has no control over quarantine, and he is compelled by law to report all cases. It is unfair to ask the doctor to violate the law or to penalize him by quitting him for another doctor who is not as careful about such obligations. This applies in all diseases where quarantine is necessary, but especially in scarlet fever, where it is sometimes hard to understand why a patient who seems entirely well should still have to remain in quarantine. The mildest cases may be the worst in spreading the disease because the patients are not sick in bed but may be going to schools, theaters and other places where they can expose others. Certain well persons may carry the germs in their throats and spread the disease; such persons are called "carriers."

Measles: The germ of measles has not been certainly identified, but it seems to be due to a filtrable virus (review outline on colds for this). The disease starts with what seems to be a cold, which lasts for about five days, with sniffles, watering eyes sensitive to light, fever and cough. Then the rash appears on the skin and on the linings of the mouth and nose. In seven days more the patient is usually well. The disease is more contagious during the sniffles than later and is seldom recognized until the rash appears. In the meantime it has probably been spread about, unless the advice given about colds (review outline on colds) has been taken.

Measles may now be prevented by the giving of serum from the blood of human beings who have recently had it and recovered and by another preparation called placental extract. This is a highly complex preparation made from purified placental tissue. The placenta is that connecting part by means of which the developing infant obtains his food from the mother's body. The matter of manufacturing is highly complex and need not be discussed here. It is sufficient to say that using this

preparation as well as convalescent serum gives promise that the day of preventing measles is coming closer to realization. No effort is made to prevent all cases of measles but only those in children under 3, in whom the disease is most serious. At the same time, it is not true that all children must have measles and might as well have it and be done with it. That is an old and dangerous idea; measles may do serious harm at any age, but it is worst in the young.

Treatment of measles consists of rest in bed, careful medical supervision and nursing, protection of the eyes against light. The patient must not be put in a room so dark that it strains the eyes. All that is necessary is to have the back to the light, be protected against glare and avoid use of the eyes for fine work (reading, sewing, play) until recovery. Convalescent serum and placental extract are not used for treatment. They are used only for prevention, and one or the other is given to the child when exposure to measles seems likely or is known to have occurred. The protection lasts only a few weeks. The effort is made not to prevent the disease entirely but almost to prevent it, so that there will be a light attack to give protection for the future. Few who once have measles ever have it again; there are exceptions, but they are rare. No quarantine is demanded for measles; usually only the patient is kept in the house, while the children who have had measles may go to school. Children who have not had measles must stay in the house or be removed elsewhere but may not go to school or play with other children.

Whooping Cough: The germ of this disease is known. A child with whooping cough usually starts with a slight dry cough, hanging on for about two weeks and steadily growing worse. Then comes the whoop from which the disease takes its name. The coughing attacks come rather far apart in mild cases, closer together in severe ones. Between attacks there is no coughing. Each attack starts mildly, grows worse until the child appears unable to get his breath and then the breath is drawn in with a long crowing sound, the whoop.

Until recently the disease was seldom recognized until the whoop was heard; in the meantime it had been highly contagious and had been spread about freely. Now it has been learned that all coughing children during an epidemic must be avoided. Also it is possible to diagnose many early cases by having the child cough on a dish in which there is a thin film of a material made from animal blood, a sugar and agar, a gelatin-like substance made from seaweed, which makes the material solid. On this dish, which is called a cough plate, the germs of whooping cough feed on the blood, grow and may be recognized. This makes earlier diagnosis possible.

Prevention consists in avoiding all coughing children and staying

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SCHOOL and HEALTH

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the legumes, which include peas, beans and lentils—contain more than others. Foods of animal origin furnish a higher quality of protein as well as greater quantity. Thus lean meats, milk, cheese, cottage cheese, fish and eggs are the most valuable sources of protein for growth.

Protein Value of Foods

Protein values are simple to remember because various types of food contain about the same amount of protein. For example, in the case of lean meats appearing in table 1, one figure roughly indicates the protein value of the different varieties of lean meat. Other foods included in the list are sources of proteins commonly used in daily meals.

The Protein Needs of the Body

Proteins, to be utilized by the body, must first be broken down during digestion into amino acids, which are then absorbed into the blood stream. The tissues are thus nourished, and growth and repair result.

The protein requirement of the body cannot, nor need not, be stated as exactly as its energy requirement. For adults the quantity needed depends on the amount of muscle the persons have. A tall, muscular man needs more protein than a short, fat man weighing the same amount. For children the protein need depends largely on rate of growth and size. Because of the extra growth requirement, children of all ages need more protein in proportion to size than adults.

A safe estimate of the daily protein need of children of school age is from 60 to 90 Gm. A 2,500 calorie diet for a girl of 10 should provide around 75 Gm., about 12 per cent of the total calories. Table 2 shows roughly how nearly she approaches this amount if she includes in her daily meals wholesome sources of protein in the amounts usually recommended for children of that age.

Small amounts of protein from other foods can be depended on to make up the full 75 Gm. Moreover, at least two thirds of the total amount—a good rule to follow in a child's diet—is of the high quality "animal" protein particularly important for growth. Note that nearly one-half the requirement is furnished by 1 quart of milk.

TABLE 1.—*Protein Values*

Foods	Servings	Calories	Protein, Gm.
Cottage cheese	5 tablespoonfuls	100	19
Lean meat	4¾ by 4½ by ¾ inches	100	13
Fish (salmon)	½ cupful	100	11
Navy beans	½ cupful	150	10
Milk	1 cupful (¼ quart)	168	8
American cheese	1½ inch cube	100	7
Egg	1	70	6
Whole grain cereals	⅔ cupful of cooked or	100	4
White cereals	2 slices bread	100	3

Application to the Classroom

Experience has shown that the most practical method of teaching the selection of a diet adequate in protein, as well as in other essentials, is to encourage well balanced meals complete in all the dietary essentials known to be required for good growth and buoyant health. It is proposed therefore that a unit on lunch be introduced as one means of accomplishing this purpose. By actual check it has been found that lunch is often slighted by school children, a fact responsible in many cases for reducing the quantity and quality of foods taken in the entire day. No matter whether the meal is eaten at school or at home it is important that it be suitable and adequate.

A Unit on Lunch

Young children in the lower grades can be taught some of the most desirable foods to be included in good lunches. If lunch is obtained at the school, cooperation between the teacher and the lunchroom manager is essential. The latter may plan economical "plate" lunches which permit certain choices, as between vegetables, and the teacher can encourage and even assist the children to buy them. Such lunches should follow a definite plan, so that children will learn to expect certain foods from day to day. One such plan called an "A" lunch consists of the following: one cupful of milk or two foods made with milk; a fruit or vegetable; two substantial foods, as meat, potato or sandwiches, and dessert if desired.

When lunch is eaten at home the mother's cooperation is particularly important. She can be encouraged to provide a simple adequate meal, embodying essentially the elements of an "A" lunch. Lunches carried from home should meet definite standards of quality and quantity. Nourishing sandwiches, raw fruits or vegetables and a simple dessert brought from home can be supplemented by bottled milk bought at school.

Students in the intermediate and upper grades should become more interested in the *why* of good lunches; for example, that there should be *enough* food to refuel for the afternoon's work and that the quality must be such as to provide its share of other essential elements, of which protein is only the first to be studied.

Children will become proficient in grading each other's lunches chosen in the school cafeteria; in planning suitable lunches to be carried from home as well as lunches which mother can prepare at home; in calculating the amount of money required to buy a satisfactory lunch in the cafeteria, and in figuring how much can be saved by buying the plate lunch combination offered as a "special" for the day.

The unsatisfactory quality of lunches bought by pupils in high school cafeterias or neighborhood stores has become proverbial. Nutritional teaching in the classroom, coupled with an actual lunchroom project in which the students come to feel responsibility for good lunch choices on the part of the entire school, can be a positive help in improving this situation. Experience in several instances has demonstrated that improvement in the physical features of the lunchroom, arrangement of the cafeteria counter, the attractive display of foods, together with suggestions of popular but wholesome foods to be incorporated in plate "specials" and the grading of lunches chosen by the pupils can raise the nutritive quality of high school lunches.

TABLE 2.—*Suggested Daily Protein Intake for Girl, Aged 10*

Foods	Amounts	Calories	Protein, Gm.
Milk	1 quart	675	32
Meat (lean)	1 serving	100	13
Egg	1	70	6
Cereal (whole grain)	2 servings	200	8
Cereal (white)	2 servings	200	6
			65

References

THE SCHOOL CAFETERIA by M. D. Bryan. New York: F. S. Croft & Co., 1936.

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WHEN FIRST AID BECAME A PLAY

RUTH M. CULTER
ORANGE, CALIF.

Children will welcome training in hygiene if it can be presented dramatically. Work in first aid lends itself naturally to dramatization. Do you find this kind of presentation helpful in your own teaching? Whether or not you do, you will find this story of achievement intriguing.

THE pupils of the Valencia fifth and sixth grades were trying hard to study as their teacher chatted most interestedly with the school nurse. Suddenly in the middle of one of her own sentences the teacher burst out with, "Mary's dress is on fire! Charles, Ted, George!" The nurse started saying, "Oh, really!" but the teacher stood there calmly, smilingly watching the two boys scramble to Mary's rescue, pulling off their coats as they went. The third one dashed for the blanket in the adjoining room. Mary all the while stood calmly by her desk as the boys quickly but carefully wrapped their coats and the blanket about her and then stepped back to wait.

The nurse praised the boys for their quick action and noted the fact that they had not covered her head but at the same time wrapped her so thoroughly that the flames would be smothered. She also brought out the fact that Mary did not run about the room causing the imaginary flames to spread.

The nurse was then told that the pupils had been studying First Aid and were ready for her to give them an "examination." She soon found out that she too was being examined, for when she said, "Flora, what would you do if Sally came in with a cut on her arm?" immediately Flora asked, "How is the blood coming out, in spurts or a steady flow, and where is the cut on her arm?" After these questions were answered to her satisfaction she began first to put a tourniquet on Sally in the proper place and then to wrap up the wound after she had explained the correct way to care for the wound before it could be wrapped so that the patient could go to the doctor.

John was asked what he would do if Charles had broken his leg playing ball. Charles was immediately stretched out on the floor, and the baseball bats were pressed into service as the boys tied the leg in the "splints" before transportation to the doctor.

The drowning playmate was revived; arms broken in various places, a nosebleed, cut heads, broken toes and other injuries to members of the body were cared for by the eager boys and girls of the class as they showed their much loved nurse the things they could do in an emergency.

The nurse was told how they had been studying and practicing all year in order that they might be ready for this day's exhibition. Many noon hours had been taken up with the proper carrying in of the injured, bandaging and other first aid care. Always at first the children referred to the little first aid book which had been given them by an insurance company or their Boy Scout handbook. The teacher was always called to check the work. Interest and competition were keen, and the children brought from home rags and small sticks and boards for their own splints in order to carry on their practice work.

The "problem" boy became so interested in the care of his "injured" friends that he said to the teacher, "Miss Crane, I'm going to write a first aid play, and I'm going to be the doctor." Of course he was given the necessary encouragement, and together they made plans for it. He enlisted the assistance of the other problem boy of the room as co-author, and conferences began with the selected characters and the first outline made.

The sudden closing of the building for repairs and the class being put on a minimum half day schedule brought the play to a sad end. The visible results may not have been so many, but the boys and girls will always have had the experience of caring for emergency needs.

The cause for the keen interested study which continued through several months of the year came when a little first grader tumbled down the steps one noon and came up with a broken arm. No one knew what to do to help the teacher, and they saw and felt the need for such knowledge in their own lives.

First aid should have a recognized place in the curriculum, for every one meets emergencies many times in these days of modern transportation.

To Contributors:—*The editor of the School and Health Department will be pleased to receive articles dealing with the actual solution of concrete and practical health education problems in the school. Contributions on general theory are not solicited. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

ALL IN THE DAY'S WORK

MARY B. RAPPAPORT
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Miss Rappaport continues her stories about the good teaching she finds in her visits. This month she tells about a school where teacher and pupils practice courtesy and good will. These are indications of a healthy minded school where boys and girls are learning to live together.

JUST as I reached the room, a little girl opened the door. She said, "Come in. We are glad to see you."

Remembering this grade from last year, it was a delightful surprise to find this courtesy.

"We are just finishing our exercises," said the teacher. "Do you mind waiting?"

Of course I didn't mind. I enjoyed watching them walk in a straight line and stretch tall.

As soon as they were through, the teacher told them what they were to do. Meanwhile one of the boys had brought a chair for me. When I thanked him he seemed embarrassed but very pleased.

The teacher and I had occasion to go outside the room to see a new chart. While we were out of the room I asked her about the boy who had brought me the chair.

"Isn't that the boy who has been causing you so much trouble?"

"Yes, it is, but I like him better than I did. Ever since I learned that his mother is dead and that his father is trying to bring him up, I have been feeling more kindly when he doesn't behave. I don't believe he has been so stubborn lately, but he's far from perfect."

"Are any of us perfect?"

"No!" was the quick reply. "I know I have my days too, and that's when he causes me the most trouble. I suppose the way I feel has a great deal to do with it. Something that happens at home might also be the cause sometimes," she continued thoughtfully.

We went back into the room. Everybody was busy.

"It certainly is nice to see how well you boys and girls work together," I said as I was ready to leave.

Just then the boy of whom we had been speaking raised his hand.

"What is it, George?" the teacher asked.

"May I introduce our new boy?"

"Why, yes! If you wish."

In the most gracious way the new boy was presented to me. The pleased expression of teacher and pupils stayed with me a long time.

TO AMERICA'S SCHOOLS—YOUR HEALTH (Continued from page 72)

out of crowds; within the past few years there has also been developed a successful vaccine, commonly called the Sauer vaccine after the doctor who worked out the method. This must be given at least four months before exposure, which means, of course, that all children should have it. It should be given before the age of 1 year, since the younger the child, the worse the disease. The value of the vaccine is not fully established, but reports are very promising, and its safety is certain. There is no successful treatment for the disease except to make the child as comfortable as possible and by means of appropriate medication prescribed by the physician to control the attacks as much as possible. No vaccine useful for treatment has been found, though many have been tried.

REFERENCES FOR THE TEACHER

Texts previously recommended.

CONTAGIOUS DISEASES by W. W. Bauer. Price, $2. New York: Alfred A. Knopf, Inc., 1934.

SUGGESTED PROJECTS

Write your own experience with scarlet fever, with measles, and with whooping cough.

Have a Dick test made to see whether you are susceptible to scarlet fever if you have not already had it.

Ask each member of the class to inquire of the parents of all babies in their relationship or among their acquaintances how many have been vaccinated against whooping cough.

Ask each member of the class to inquire of the elderly ladies, especially grandmothers, with whom they are acquainted, what they think about the necessity of children "having measles and getting it over with." Try the same question out on young mothers of the pupils' acquaintance.

Find out the nearest place where measles convalescent serum or placental extract may be had, the price and how long it would take to get it.

Find out whether your health department laboratory makes whooping cough plates. If so, perhaps some of the germ growths may be inspected, but only under supervision, for these innocent looking specks on the plate may spread the disease if carelessly handled.

January 19: Smallpox and Diphtheria.—These diseases are grouped together in one program because they are the two contagious diseases which now no person need ever have.

Smallpox: This disease was formerly among the most dreaded of all infections. It spread all over the world causing as many as 60 million deaths in 100 years. It was a more terrible disease than the black plague because the plague came only at long intervals, while smallpox was always present. Today the whole picture has been changed by a simple preventive measure discovered in 1798 by an English physician named Edward Jenner.

Smallpox is a contagious disease spread through the nose and throat

as are colds, scarlet fever, measles and whooping cough, which were previously considered (review programs of these diseases). The first symptoms of smallpox are fever, terrific headache and terrible backache. The disease is often mistaken for influenza. After two or three days an eruption appears on the skin in small, hard, red bumps which gradually turn yellow as they become filled with pus. In severe cases these may be so close together that they run into one large blister filled with pus. The odor of a patient with smallpox is easily recognized and very unpleasant. When these skin eruptions heal they leave scars. At one time many persons were scarred with smallpox. Today smallpox scars are uncommon.

The whole story of smallpox today is the story of its prevention. This is called vaccination. It is not the only form of vaccination, as we have seen in connection with whooping cough. Smallpox vaccination however is the most important, and when we say simply "vaccination," we mean against smallpox. Vaccination against smallpox was discovered by Edward Jenner in 1798, or rather during the twenty years ending in 1796. His announcement was published in 1798. Jenner observed that milkmaids could take care of smallpox patients without getting the disease. Nobody else could. Jenner also observed that milkmaids commonly had eruptions on their hands which they got from the udders of cows. These eruptions were called cowpox. Putting two and two together, Jenner decided that having cowpox must be some protection against smallpox, and so he decided to try it out. Having tried it he published his results. His observations met with violent objections at first but are now universally accepted except by a small group of agitators who are opposed to all scientific medical progress. Early vaccination was very crude, consisting simply in taking the matter from a cowpox blister and putting it on the arm of the patient to be vaccinated and then transferring material from one human being to another. It must be remembered that in 1798 no one knew anything about germs or infection. Consequently, many sore arms resulted.

Modern vaccine is still made from calves but is carefully purified. Cleanliness learned from the study of bacteriology has improved vaccine technic. Therefore we no longer expect sore arms, and we seldom encounter them. Usually when we do, it is because the patient has not followed instructions and has either done something that he should not have done to the vaccination or failed to return for observation and appropriate treatment.

Vaccination should be done at about the age of 8 months; and it should be repeated just before the child enters school. If this is done, revaccination is seldom necessary unless there has been known exposure to a case of smallpox. Vaccination after exposure to smallpox is often ineffective unless the patient has been vaccinated before. This is because the disease develops faster than the protection.

Diphtheria: This is a contagious disease also spread by excretions of the nose and throat. It is characterized by a severe sore throat

with a tendency to blocking of the breathing passages and resultant choking. The disease is caused by a germ which grows in the throat. The germ of diphtheria is perhaps the best known of all germs. It was first found in 1883. Since then it has been extensively studied, artificially cultivated in the laboratories and made to render its positive protection artificially for use in immunizing horses and, after treatment to remove its poisons, for immunization purposes in human beings. This germ produces a severe poison in the throat of the victim, which does injury to the heart, the nerves and sometimes the kidneys. The two greatest dangers in diphtheria are choking from the direct growth of the germs in the throat and poisoning of the vital organs by the absorption of material manufactured by the germs.

Because of the poison made by the germs it has been possible to develop immunity against diphtheria. This was first done in horses. Experimentally, it was found that by giving horses limited doses of diphtheria poison or toxin, beginning with small doses and working upward, the horse would finally become immune to the disease, and its blood injected into guinea pigs would protect them against doses of diphtheria poison which would otherwise have been fatal. After many chemical experiments it was found possible to separate from the blood of such horses the substance which gives protection against diphtheria. This substance is called diphtheria antitoxin.

Later observations indicated that some children seem naturally protected against diphtheria. It was reasoned that such children must have antitoxin in their blood. Dr. Bela Schick, formerly of Vienna, worked out a skin test by means of which the antitoxin in the blood of a child can be measured. If this is not sufficient it can be increased by injections based on the same principle as the immunization of horses but with material from which the poisonous portions have been totally removed. This material is called toxoid. Every child should have toxoid before the age of 8 months. Six months later a Schick test should be given to measure the effectiveness of the toxoid and, if necessary, additional toxoid should be given. If this were done universally there would no longer be any such thing as diphtheria.

Recognition of the disease is by means of throat culture. Some of the material from the throat of the sick person is taken on a sterile cotton on the end of a stick (applicator) and then transferred onto a gelatin-like substance in a test tube, like the cough plate used in whooping cough, which was described in a previous broadcast. This is agar and contains blood serum and sugar. The tube is placed in an incubator, and the culture grown for eighteen hours. Then the growth is examined, and a smear is made on a glass slide and placed under the microscope. Thus the doctor can get the information in twenty-four hours and, if diphtheria germs are found, give antitoxin in sufficiently large doses.

Antitoxin is used for treatment only and not for prevention. It is still necessary to use antitoxin because not all people are made immune to diphtheria through artificial means. The toxin-antitoxin is used but rarely today.

Quarantine: Both smallpox and diphtheria are quarantinable diseases. In each the patient is put in quarantine, and no one is allowed to come in or out except doctors, nurses, ministers, and the mother or other relative who is caring for the patient. In smallpox the quarantine lasts until recovery and clearing of the skin. In diphtheria it lasts until no more germs can be cultivated from the throat.

REFERENCES FOR TEACHERS

As suggested by programs of January 5 and 12.

ELEMENTARY BACTERIOLOGY by J. E. and E. C. Greaves. Third edition. Price, $3.50. Philadelphia: W. B. Saunders Company, 1936.

MAN AND MICROBES by Stanhope Bayne-Jones, M.D. Price, $1. Baltimore: Williams & Wilkins Co., 1932.

EDWARD JENNER by Grace T. Hallock and C. E. Turner. New York: Metropolitan Life Insurance Company.

SUGGESTED PROJECTS

Visit your health officer or write the state board of health to find out how many cases of smallpox were recorded last year; how many of diphtheria; how many deaths from smallpox; how many deaths from diphtheria; how many children vaccinated; how many babies born. How does the number vaccinated compare with the number born? On this basis is the number vaccinated in the community improved or deteriorated? Make the same comparison of the number of babies born with the number given protection against diphtheria. Does this indicate that protection of babies is keeping pace with the number of babies born? If there are younger children in your own family, indicate how many have not been vaccinated against smallpox and immunized against diphtheria. If the reason is known, state in each case why vaccination and immunization have not been done. If there is a laboratory in the community, visit it and see the incubator tubes for culture and, if possible, the diphtheria germs under a microscope. How many in your class are vaccinated successfully? How recently? How many have been protected against diphtheria? Has a Schick test been done?

January 26: Poliomyelitis.—Poliomyelitis, commonly called infantile paralysis, is a disease which is serious in certain cases and has come to be much feared. There has been so much panic in connection with polio—which is the short term commonly used (pronounced "poll-ee-o")—that the truth about the disease should be known in order that there may be sensible precautions without needless fear.

The disease has been recognized only in recent years, though there are evidences in ancient pictures that the disease has probably existed for centuries. The worst outbreaks in this country have been in 1931, when it spread over the whole United States, and in 1916, when it involved mainly the rural regions of New York State. Since then, periodically there has been a fall outbreak, usually centering in some limited area. In 1936 this was northern Alabama and parts of the bordering states, and in 1937 the area around St. Louis and Chicago suffered most. Epidemics usually start in late summer and end with cold weather. Nobody knows why.

Polio is a contagious disease, spread in the same manner as colds are spread (review this if necessary). It is caused by a filtrable virus (review this also if necessary). Contrary to general belief, it does not always cause paralysis, and it may affect adults as well as children. As a rule the only cases that are recognized are those in which paralysis occurs. It is as if no cases of scarlet fever were to be recognized unless kidney disease were present. This circumstance requires some explanation. It is now commonly believed by students of polio that instead of the few hundred recognized cases of paralysis that are reported in each epidemic, there actually occur hundreds and probably thousands of cases in which there is only a little fever and some mild illness of no apparent consequence, without paralysis or other complications. This belief is based on the fact that blood from grown persons who have never had the disease seems to have the power to give immunity against it. This would indicate that they had recovered from an unrecognized attack of the disease. Further support is lent to this

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QUESTIONS and ANSWERS

Pigmented Moles

To the Editor:—I have several pigmented moles on my face and arms. I was advised against removing them because the electric needle caused the bursting of the brown cells which might enter the blood stream and later form cancer. Do you think having the moles removed would cause others to appear?

E. S., Illinois.

Answer.—Pigmented moles differ greatly in size, color and potential susceptibility to malignant or cancerous degeneration, and each case must be judged separately. Although there are many exceptions, in general it may be said that all pigmented moles should be destroyed thoroughly or left entirely alone. However, this actually depends on the type and depth of color, size, location and firmness of the lesion as well as on other factors. Sometimes a pigmented mole must be removed because of its location at a site where rubbing of clothing, shaving and similar irritations may induce malignant change in it after a long period of such friction. Complete removal of a pigmented mole does not cause others to appear, but the same one may regrow at the same site if not thoroughly removed.

Thorough removal of a pigmented mole will not cause cancer but may be followed by the appearance of cancerous growths in other parts if the mole had already become cancerous before operation was done, even though the original lesion was cut out widely. This sometimes occurs because it is not always possible to determine malignant change in such a mole without microscopic examination. In a case where pigmented moles are to be removed for cosmetic reasons only, removal sufficiently thorough to be safe may be followed by scarring, which is equally displeasing to the patient from the standpoint of appearance.

Operation for Blistering of the Eyeball

To the Editor:—I had an operation for chronic glaucoma in one eye about a year ago and was advised to have the eyeball blistered. Will you please explain the blistering of an eyeball? Will you also tell me whether a lens operation is an ordinary thing or very difficult? Would another lens tend to stop the "jittering" of the iris?

D. M., Missouri.

Answer.—The meaning of the term "blistering" of the eyeball is not clear. After a successful operation for chronic glaucoma, a filtering scar forms, which looks not unlike a blister. This is a good thing and is what one attempts to secure. If a glaucoma operation is unsuccessful, another can be done.

By a "lens operation" is presumably meant the extraction of a cataract. This is an ordinary operation, successful in the majority of cases. After a cataract extraction the iris is often tremulous. There is no harm in this, and nothing need be done about it.

The inquirer would do well to follow the advice of a competent physician.

Laughing Gas

To the Editor:—What difference is there in laughing gas inhaled and exhaled?

P. B., Ohio.

Answer.—None at all. On inhalation, laughing gas, or nitrous oxide, diffuses from the air spaces in the lungs into the blood. It does not combine with the red coloring matter, hemoglobin, contained in the red blood corpuscles, or erythrocytes, but is simply dissolved in the blood plasma, and to only a slight extent. In other words, its coefficient of solubility is very low. For purposes of anesthesia, laughing gas is usually administered in a concentration of 90 per cent—95 per cent together with oxygen, the latter in concentrations of 10 per cent—5 per cent respectively. When the administration of this combination of the gases ceases, the nitrous oxide, or laughing gas, diffuses from the blood coursing through the lungs into the air sacs and is exhaled during respiration into the surrounding atmosphere. In other words, laughing gas on inhalation does not experience any chemical change while present in the circulation or in the tissues of the body. It is inhaled as laughing gas and is exhaled as laughing gas.

Childbirth

To the Editor:—I have read that "twilight sleep" should be abandoned as detrimental to the infant. Is this true? What is the more modern way?

Mrs. W. I. B., Missouri.

Answer.—The answer depends on what the questioner means by "twilight sleep." If she refers to the original German "twilight sleep" which results from the use of morphine and scopolamine, the following statements appear to be true: 1. Any ill effect on the newborn infant depends on the use of morphine and not of scopolamine. 2. The use of morphine preceding delivery of the infant is not always the safest procedure; great care must be exercised in administering it, paying especial attention to the time that the morphine is administered, giving it in the proper dose, usually limiting it to one dose and at a suitable time interval before the birth of the infant. 3. If morphine is given less than eight hours before delivery, it will result in a higher percentage of asphyxiated babies, premature or full term, than is the case if it is not given. 4. It is doubtful whether the infant death rate is increased in full term deliveries when morphine is used, provided only one dose is given at a suitable time interval before birth.

If other methods of producing loss of memory of labor are referred to, the answer is quite different. Such other methods are dependent on the use of similar drugs as well as other drugs of which the physician has knowledge. Such other drugs may be applied with safety by the physician choosing each drug most suitable to the patient's needs. All of them may be used with safety so far as the baby is concerned, and no ill effects, either immediate or remote, may be expected.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

New Books on Health

OUR CHILDREN IN A CHANGING WORLD

By Erwin Wexberg, M.D., and Henry E. Fritsch. Cloth. Price, $2. Pp. 232. New York: The Macmillan Company, 1937.

ON THE theory that there are no "bad" children but only children badly brought up, this book elucidates with exceptional clarity and good judgment the problems of child behavior and child guidance, largely on the basis of the experience of the New Orleans Institute for Child Guidance. The authors claim the individual psychology of Alfred Adler as their guiding spirit, but whatever may be their brand of psychology they have not abandoned common sense. The book deals with the common behavior problems of childhood. The general influences affecting child behavior are enumerated, including the inferiority feeling, the social feeling, the unity of personality, character and. will, heredity and imitation, temperament, talent and educational influence; on the interplay of these factors depends the development of problems which may arise.

The authors recognize five factors in environment; namely, physical condition, social and economic environment, sex, the family and education. Among special problems they recognize the bad or criminal child (so called), the lying child, the overambitious child, the model child, the timid child, the fearful child, the lazy child and the stupid child. Nervous habits, including eating troubles, thumb sucking, nail biting, tics and restlessness, and bedwetting, uncleanliness, speech disturbances and sexual behavior are discussed helpfully and with refreshing absence of psychologic jargon.

Anybody who can read plain English can understand what these authors are talking about, but few honest parents will be able to read the book without a haunting sense of guilt and an impulse to go and apologize to their children for being such bad parents. "There are no bad children," but it appears that there are plenty of bad, though well meaning, parents. That most of our children turn out well, without benefit of psychiatry, is a tribute to their innate ability to survive bad bringing up with a minimum of harm. But such a book as this, in the hands of intelligent parents, should take some of the uncertainty and much of the conflict and heartache out of the serious job of being a parent.

W. W. BAUER, M.D.

THE PSYCHOLOGY OF EATING

By Lewis Robert Wolberg, M.D. Cloth. Price, $3. Pp. 321. New York: Robert M. McBride & Co., 1937.

THE author of this philosophic volume is a psychiatrist. After presenting an interesting account of eating habits of different people at different times, he appends some good dietetic advice. The earlier chapters describe the culinary practices and eating customs of historically well known personages, all of which makes interesting reading. In the later chapters the values of various foods are discussed in nontechnical language, and practical advice is provided on the preparation of foods and on the selection of diets for reducing. The humors of popular reducing methods are discussed in some detail. Many of the references in this chapter are to reports of the Bureau of Investigation of the American Medical Association.

One chapter is devoted to cookery secrets and recipes for the obese, and another provides "100 Reducing Menus." The latter include 24 different menus for breakfast, 36 for lunch and 40 for dinner. These are so arranged that the same number of calories and approximately the same nutritional values may be obtained, no matter which breakfast, lunch or dinner is chosen. A cursory examination of these tables indicates that the protein content obtainable from the various suggested menus would be about 70 Gm. a day. The daily menus would also provide, it would seem, about 0.5 Gm. calcium, 0.9 Gm. phosphorus, 10 mg. iron, 3,000 or more International units of vitamin A and about 700 International units of vitamin C. From the nutritional point of view therefore the menus appear to be satisfactory.

The individual dishes, however, are somewhat expensive and would seem to be selected for the gourmet, or at least for a person with a taste for the unusual in food and with a purse to match his palate. However, there is sufficient information provided in the chapter entitled "Diets for Overweight" to enable persons who desire to reduce to choose other foods. The usefulness of the book is enhanced by the inclusion of a bibliography and a suitable index.

FRANKLIN C. BING.

[NOTE.—Books reviewed or mentioned in this section, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

VITAMINS IN THEORY AND PRACTICE

By Leslie J. Harris, Sc.D. Second edition. Cloth. Price, $3. Pp. 242. Illustrated. New York: The Macmillan Company, 1937.

THERE are all kinds of books on nurtition issuing from the presses each year. Professor Harris' contribution is not just another book on vitamins but is a vivid, brief account by a recognized authority. Each of the important vitamins is discussed, and the text is copiously illustrated with well chosen pictures. The chapter on vitamin D and rickets, for example, provides a reproduction of the title page of Francis Glisson's pioneer treatise of 1650, illustrations of x-ray photographs of rachitic and normal bones, pictures of juvenile rickets and osteomalacia, a photograph of five babies receiving ultraviolet irradiation in a modern hospital, a picture of the chemical apparatus for the synthesis of vitamin D, photographs of the crystals of the vitamin and many other charts and tables.

There are chapters on each of the vitamins and a concluding chapter on dietetics and what to eat. Professor Harris summarizes the practical aspect of the vitamins by pointing out the common errors in the diet of the British working class. In general these defects could be overcome by increasing the consumption of fresh fruit, milk and whole wheat bread.

The book is eminently readable. It presents an intimate and authoritative summary of the recent developments in the field of the vitamins.

F. C. B.

SAFETY THROUGH THE YEAR

By Florence Nelson and H. Louise Cottrell. Paper. Price, 52 cents. Pp. 96. Illustrated. New York: McGraw-Hill Book Company, 1936.

IT IS an old saying that "the proof of the pudding is in the eating." If this is true, the introduction of organized programs of safety education in our schools has abundantly justified itself, for during these thirteen years it is estimated the lives of 8,500 children have been saved and injuries to some 300,000 children have been prevented. There is probably no kind of teaching that can be carried on with greater satisfaction by the teacher than that of safety education.

In this great movement two able and experienced writers have contributed a valuable workbook for the intermediate grades. It contains much factual material, stories, problems and suggestions for activities. The large number of graphs and illustrations are carefully chosen to instruct and guide the pupil.

J. Mace Andress.

CONTROLLING HUMAN BEHAVIOR

By Daniel Starch, Ph.D., Hazel M. Stanton, Ph.D., and Wilhelmine Koerth, Ph.D. Cloth. Price, $4. Pp. 638. New York: The Macmillan Company, 1936.

AS THE senior author says in his preface, there has been one grave difficulty with psychology as it is taught in our universities; namely, that the textbooks have been so dry and so theoretical that the relation of this highly dynamic science to everyday life can seldom be seen by the student. The present volume is an excellent attempt to evade this criticism. While a good deal of the material which was included in the old-fashioned textbooks concerning sensation, perception and the construction of the nervous system is incorporated to some extent in the present volume, it is excellently sugar-coated, and its relationship to human life is demonstrated. Psychology has passed the place where the old-fashioned textbook, so familiar to all of us, can be considered an outline of everyday scientific mental study. When one realizes that in hundreds of laboratories throughout the world and in an equal number of clinics and hospitals, studies of the normal and abnormal mind are being made, one cannot overlook the fact that psychologic. knowledge is increasing in size and applicability by leaps and bounds.

The present volume is roughly divided into two parts: the first one treats of such subjects in psychology as might be applied to the individual who wishes to improve his own thinking and behavior, and the second part attempts to show methods of controlling the behavior of others.

In the first part such topics as might chiefly interest the college student, such as "How to Study," "How to Choose a Profession," "How to Think and How to Work" and "How to Apply One's Self Properly in Business" are all thoroughly analyzed, and much of the material which has been developed and divulged by researchers along these lines has been incorporated. But on the other hand a good deal of this material is speculative and traditional, and there is much that is controversial. Pitkin is cited as indicating the best diet for proper thinking. Pitkin, after all, is no dietetic authority, and similar reports could have been selected, the weight of which would have been more impressive.

The second part of the volume is less specific. Certainly those chapters dealing with the control of others are, of necessity, more theoretical; less research work can be done on this topic, and such research work as has been done on it will, of course, be relatively inaccurate. The part dealing with the control of child conduct and those brief chapters dealing with mental hygiene and with the abnormal contain little that can be criticized. They give only a smattering of the knowledge which is available on these subjects, but perhaps the beginners' textbook need give no more. Chapters dealing with propaganda, influencing through vocational guidance, through advertisement, speech, entertainment and public opinion are interesting and open vistas for further study on the part of the student.

It is seldom that one who wishes to preserve the integrity of psychology can recommend an elementary textbook. It is either too dry, too impractical or if not too impractical then too inexact. These adjectives apply less to the present volume than to most of the standard texts. The present volume does offer the opportunity of seeing what has been done in psychology, particularly as it applies to daily life, and on this basis it can be recommended.

Lowell S. Selling, M.D.

WOMAN'S PRIME OF LIFE

By Isabel E. Hutton, M.D. Cloth. Price, $2. Pp. 150. New York: Emerson Books, Inc., 1937.

THE author's object in writing this book was to present to women "a short résumé of the whole subject of the climacteric, and to give them directions for looking after their health so that they may continue to lead a normal and efficient life during this phase." The author succeeded admirably in her task. The book is written in simple language, and the advice given is sound and practical. No recommendations concerning medical treatment are made, as is proper, because women should consult a physician if they have abnormal symptoms. As the author points out, "Some women suffer stoically without ever thinking of going to a physician. It is more than likely that the symptom in question is something that can be put right by the physician."

Women near or in the change of life should read this book because it will make them realize that this period is only a transitional one and that while they can no longer bear a child after this period comes to an end, their marital career is by no means over. Furthermore, this book gives excellent advice on diet, exercise and baths which should prove most helpful during the change of life.

J. P. Greenhill, M.D.

TITANS OF THE TROPICS (Continued from page 47)

ing the mildness of the cases that resulted from Dr. Reed's experiments, he decided to test the mosquito theory himself, with vaccination as the first step. His idea was to cause a light case and so confer immunity.

Only one infected mosquito was available with which to vaccinate those desiring protection, one given Gorgas by Reed. She was a veteran that had given several persons yellow fever and, remarkably, fifty-seven days had elapsed between the first case and the last. The first three months of the year in Cuba are cool, and the Stegomyia is then disinclined to exert itself, so that it was hard to infect any. This made "her ladyship," as she was called, very precious. Both doctors and nurses kept a careful eye on her, and she was indeed well cared for in her room at the hospital. But her jar was covered with netting in order to allow her plenty of air, and one morning early an emergency call came. She had caught a wing in the netting and so injured herself in her struggle to get free that she was almost dead when found. Despite frantic efforts to save her, she died, with half a dozen of the leading doctors and a number of nurses in attendance. As a result the vaccination scheme was held up, for it was July before another infected mosquito could be obtained.

Just how differently the experiment would have worked out if "her ladyship" had lived is uncertain. As a matter of fact, when vaccination was tried on some of the many who applied, the cases did not prove light after all. In fact, three out of eight died. Gorgas felt that probably during the sluggish season the disease was not so virulent as in the hot summer months and that this accounted for the difference between the light cases that occurred in Reed's experiments and the severe cases in his own vaccination experiments. Yet one wonders why light cases should ever have been looked for when the method of transmission was that of nature. In any case, vaccination had to be given up.

An attempt was next made to prevent patients from being bitten during the first three days of the disease, and to this end careful screening was used. If the patient preferred to stay at home rather than go to Las Animas Hospital, carpenters were sent by the health department to screen the house carefully, leaving only one entrance and exit, protected by a vestibule and double door. An officer was kept on guard to see that only authorized persons entered and that only one door was open at a time, the guard being changed every eight hours. This plan was not altogether successful either, for it was hard to get the patients early enough.

By this time considerable knowledge of the Stegomyia mosquito and its habits had been acquired. Different species of mosquitoes vary greatly in their breeding places, some preferring dirty and muddy water and others fresh, clean water. Both the Stegomyia and the Anopheles mosquito, the latter the carrier of malaria, prefer clean, fresh water. Moreover, the Stegomyia is the poorest flier of all the species of mosquitoes and is easily blown away by a breeze, so that it seldom wanders from the house where it is bred. These facts led to a fumigating campaign and an attempt to prevent the breeding of mosquitoes by oiling pools to destroy the larvae and by keeping a close watch over all supplies of rain water such as were kept in most of the homes. Sulfur or, if that might be injurious, pyrethrum was used for fumigation; and in the latter case, as it merely intoxicates the mosquitoes, the houses were opened up in an hour or two, and the mosquitoes were swept up and burned. The cisterns and other water containers were inspected once a month, a fine being imposed if mosquito larvae were found. When the condition was remedied promptly, the fine was remitted. As a fine was regarded as being practically in the pocket of the official once it was assessed, its remission was looked on as a gift, pure and simple. Therefore, since out of 2,500 fines levied, only 50 were actually imposed, the health department was very popular.

If yellow fever is to be kept out of a locality, the parasite must not be allowed to enter either in the body of one sick with the disease or in a Stegomyia mosquito. To assure this, quarantine was sometimes necessary. When a vessel, for example, arrived with a yellow fever patient on board, it was quarantined; that is, the boat was fumigated to kill all mosquitoes, and any nonimmune persons were held for six days, in which time the disease would develop if contracted.

These various measures brought a rapid disappearance of yellow fever, deaths from that cause dropping from 136 in 1898 to 18 in 1901 and to none in 1902. The work against mosquitoes also had an equally good effect in the elimination of malaria, the work in this case being carried on outside the city, as the Anopheles is a country mosquito, while the Stegomyia lives in towns.

His campaign in Cuba having met with success, Gorgas wrote General Sternberg about Reed's discovery and the eradication of yellow fever from Havana, and pointed out the importance of these facts to the construction of the Panama Canal. For the French during their occupation had lost one third of their white force from disease, and conditions were still the same. The response was the appointment of Gorgas as head of the sanitary work in Panama, but nearly two years were to pass before the work was actually started. Even then, despite the importance of good health conditions, there was not a single medical man on the commission in charge, though five of its seven members were engineers. Only through the governor could Gorgas get in touch with the commission and only what appeared important to the governor was done. Since the commissioners had no training in sanitary matters, they did not appreciate the greatness of the task and failed to cooperate. Fumigation, which had proved so effective in Havana, was done over three times. Yet conditions went from bad to worse. When at the end of a year, in April 1905, several high officials died of yellow fever, the United States government was requested to remove Gorgas and his co-workers and send other men who were less visionary. The members of the commission thought the mosquito theory far-fetched. Fortunately President Theodore Roosevelt had followed the work in Cuba and refused to make the change. A new chairman of the commission came into office soon after, who gave all the help he could, and in the fall the Sanitary Department was made an independent bureau. By November the last case of yellow fever had occurred.

The eradication of malaria from the Canal Zone was secondary but was greatly helped by the general war on mosquitoes. Until the actual steps could be taken to kill the mosquitoes and to prevent further breeding, doses of quinine were offered and urged on all workers, with good results. The Anopheles mosquito is a somewhat better flier than the Stegomyia, being able to fly perhaps 200 yards if protected by vegetation from sun and wind. Therefore not only was attention

(Continued on page 93)

AFTERNOON STUDY CLUB (Continued from page 54)

MRS. PETTIT: M-m—that doesn't sound like it.

MISS FANNY: Toxin-antitoxin?

MRS. PETTIT: That's it!

MISS FANNY: Toxoid is the newer treatment. It prevents diphtheria just as the other did.

MRS. PETTIT: I lost a little girl because of diphtheria. I shall never forget how slowly she strangled to death. I just couldn't bear to have my grandchildren die like that, especially after I found that the disease could be prevented. *(Sits.)*

MISS FANNY: And now, Mrs. Doran, you asked about an epidemic of smallpox here in our country. There is a great deal of agitation among antivaccinationists to get laws passed against vaccination. If they succeed, the deaths which were recorded against the black death in Europe will seem as nothing beside the numbers of our citizens who will either die of smallpox or be left horribly scarred or blind.

(Enter CATERESS *with telephone message which she hands to* MRS. BLACKBURN, *who passes it on to* MRS. DELANEY *after a glance.)*

MRS. BLACKBURN *(aside to her):* Your husband is eager to hear from you apparently.

MRS. DELANEY *(smiling):* He has just returned from the school where my girls are studying, and he's probably so eager to tell me of their progress that he has followed me here.

MRS. BLACKBURN *(rising):* Are there any more questions before the meeting is adjourned?

MRS. COOPER *(rising):* Madam President—

MRS. BLACKBURN: Mrs. Cooper.

MRS. COOPER: I would like to ask Mrs. Delaney if she has ever been in the Orient.

(MISS FANNY *sits in front row as* MRS. DELANEY *rises.*)

MRS. DELANEY: No, I've been in Europe but never in the Orient.

MRS. COOPER: Then you have never seen the packs of wild dogs which infest every Oriental city. I am a lover of dogs; but, I confess, after living in the Orient for some time I believe experiment on homeless dogs is not to be condemned.

MRS. DELANEY: We of the league do not advocate homeless dogs being allowed to run as they do in the Orient. We believe they should be sheltered in clean surroundings and fed until they can be placed in good homes—or else humanely killed.

MRS. COOPER: If they must be disposed of anyway, why not let them justify their existence by giving their lives for some purpose?

MRS. DELANEY: You mean by vivisection?

MRS. COOPER: Of course!

MRS. DELANEY *(patiently):* I realize, my dear lady, that you undoubtedly do not know the vile and fiendish tortures that are practiced on animals in laboratories—

MRS. THOMPSON *(jumping up):* There may be a few—very few—places where terrible things occur, human nature being what it is; but your statement, Mrs. Delaney, is highly colored by sentiment. As a matter of fact, most experiments on animals do not require cutting or painful mutilating.

MRS. DELANEY *(coldly):* I have facts to prove my statements.

MRS. SANFORD *(rising):* Madam President—

MRS. BLACKBURN: Mrs. Sanford.

MRS. SANFORD: Mrs. Delaney, my son is a doctor of medicine and works in a research laboratory. He has often spoken of the affectionate feeling which exists between the experimenters and the animals—dogs especially. That feeling would not exist if the animals were tortured. Besides, the law in this country provides plenty of protection against cruel practices on animals.

MRS. DAWSON *(rising indignantly):* Madam President, I am astounded at the club members. I thought this was a *study* club where all sides of a question could be considered.

MRS. BLACKBURN *(calmly):* That's why I opened the meeting for discussion. We had heard Mrs. Delaney's side earlier in the afternoon.

MISS FANNY *(rising):* Before the meeting is adjourned for tea, Madam President, may I have the floor again?

MRS. BLACKBURN: Miss Fosdick.

(She, MRS. DAWSON *and* MRS. DELANEY *sit.)*

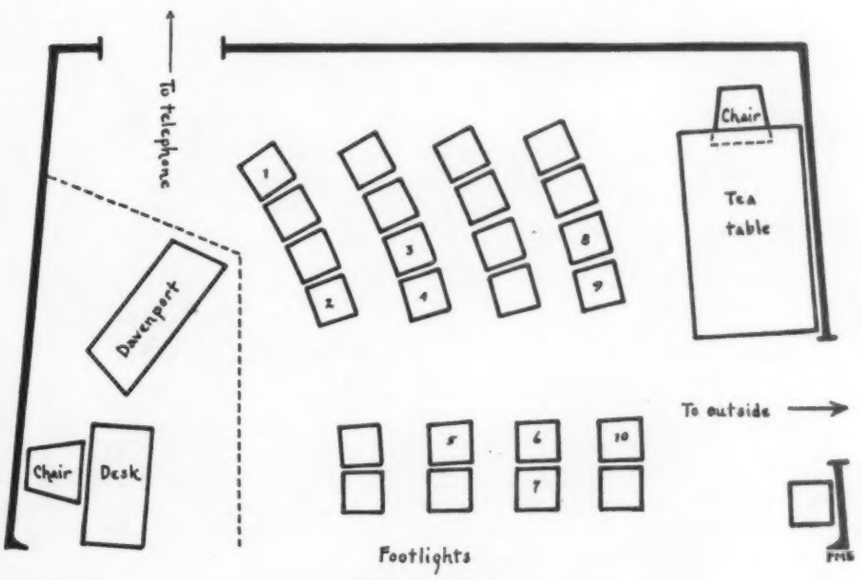
MISS FANNY: Mrs. Cooper's statement about stray dogs being allowed to justify their existence through experimentation is an excellent point—and quite Biblical, too, I believe—

MRS. DELANEY *(rising indignantly):* If it were, we would not number among our members so many ministers—and bishops and cardinals—

MISS FANNY *(laughing):* We've got some bishops and a cardinal on our side, too!

(ELIZABETH *giggles aloud, and there is a rustle of amusement among members.*)

Mrs. Borden, being the wife of a minister, perhaps you can tell



SUGGESTED SEATING

On the Platform		*In the Audience Proper*
1. MISS EUPHEMIA PIKE	6. MRS. THOMPSON	MRS. PETTIT
2. MRS. GOODRICH	7. HELEN FORBES	MRS. DORAN
3. ELIZABETH CUNNINGHAM	8. MRS. MASON	MRS. COOPER
4. MRS. CUNNINGHAM	9. MRS. ARNOLD	MRS. BORDEN
5. MRS. VANCE	10. MISS FANNY FOSDICK	MRS. SANFORD

us what the Bible says about the relationship of man and animal?

MRS. BORDEN *(rising):* You must be referring to the first chapter of Genesis where God gave to man dominion over fish and fowl and every living thing. *(Smiling, she sits.)*

MISS FANNY: Thank you, Mrs. Borden. (MRS. DELANEY *sits with air of martyr.)* Experimentation on animals, then, is justified, if man's condition is bettered through it. It has produced vaccination against smallpox, toxoid for the prevention of diphtheria, insulin for treatment of diabetes, liver feeding for pernicious anemia, antitoxin for the treatment of scarlet fever—countless vaccines and serums! Man has paid his debt to animals by improving conditions for health and welfare for animals—cholera in hogs, tuberculosis in cattle, anthrax, distemper in dogs, hoof and mouth disease—I could go on and on. Let me emphasize, in closing, that animals in laboratories live better and in more sanitary surroundings than many of our tenement poor in our great cities, and that in most cases, animals are anesthetized or given hypodermic injections to allay pain. Last of all, that it is better for five or six animals to die if by their deaths they can bring health, perhaps even life itself, to little children and men and women. *(Sits.)*

(MISS EUPHEMIA PIKE *rises angrily, gathers up purse, umbrella and hat, and stalks out door, left.)*

MRS. BLACKBURN *(rising):* Thank you, Miss Fosdick. Is there a motion to adjourn?

MRS. THOMPSON: I move the meeting be adjourned.

MRS. ARNOLD: Second.

MRS. BLACKBURN: Meeting adjourned.

(The members rise to greet each other. MRS. SANFORD *goes to tea table to pour. Groups form to file around table. Members planted in audience go to platform and join other groups. This business goes on during next speeches.)*

MRS. GOODRICH (*rushing to* MRS. DELANEY): My dear, I am so *mortified!* You can't *know* how I feel!

MRS. VANCE *(also rushing to* MRS. DELANEY*'s side):* You *poor* dear! *What* an afternoon you've had! Don't *think* of stopping for tea *here!*

MRS. DAWSON: We had *no idea* when we asked you here that you would be *insulted,* dear Mrs. Delaney!

MRS. DELANEY *(with air of sweet martyr):* Don't *mind,* dear people—*I* don't. If one gives oneself *wholeheartedly* to a Cause, one must always suffer persecution. I am quite *accustomed* to it. *(She smiles sadly.)*

MRS. VANCE (*to* MRS. DAWSON *and* MRS. GOODRICH): Isn't she just *wonderful? (They continue to fawn on* MRS. DELANEY *in pantomime as they work very slowly toward center.)*

ELIZABETH *(meeting* MISS FANNY, *center):* I stuck tighter than gum to Mother when I found she was coming to hear Mrs. Delaney. I was sure I'd have a good time. Wasn't Miss Euphemia *funny?*

MISS FANNY *(smiling gently):* Poor Miss Euphemia—she has so little in life. Probably all the love she gets is from her nine cats and three dogs!

ELIZABETH: She's typical, though, of the folks who fall for this sort of thing.

MISS FANNY: No, she's only one type. Many members of the league are like Mrs. Delaney—artists of one kind or another.

ELIZABETH: That's so, I had forgotten she's a portrait painter!

MISS FANNY: A very famous one. Then there's Ivor Troubetzky, the great character actor—and Lenora Hornbrook, the contralto—

ELIZABETH: And Josef Gruenberg—

MISS FANNY *(nodding):* The playwright. The league seems to gather in those individuals who live in their emotions—intelligent people, *brilliant*—but who do not allow their reason to make their opinions.

(They join MRS. CUNNINGHAM *at tea table, and* MISS FANNY *talks earnestly to her in pantomime. Enter* DOUGLAS DELANEY, *door, left. He looks around anxiously, eagerly, scrutinizing each face around the tea table; disappointed, he turns to see his wife at center and rushs to her side. Meanwhile——)*

MRS. VANCE: *Do* come over, *too,* Mrs. Goodrich. We can have *such* a *nice* chat over our teacups.

MRS. DELANEY: I must call Douglas—

MRS. DAWSON: The telephone is out here. *(Turns toward upstage door.)*

MRS. VANCE *(in gentle raillery):* Such devotion to a mere husband, Mrs. Delaney! Can't you even wait until we get home?

MRS. DELANEY: But he's phoned *three* times— *(Sees Douglas striding toward her.)* Why, Douglas *dear*—

(MRS. DAWSON, MRS. VANCE *and* MRS. GOODRICH *smile at them and withdraw upstage a little.)*

DOUGLAS: Doris—I've tried for an *hour* to get in touch with you—

MRS. DELANEY: I know, dear—the meeting's just over—

DOUGLAS: I've bad news for you—

MRS. DELANEY: Douglas! The girls —Warren—?

DOUGLAS: Can't we get out of here?

MRS. DELANEY *(moving toward platform):* Come over here—what *is* it, Douglas?

DOUGLAS *(evidently struggling for self control):* When I got down to the school day before yesterday—Robin—was in the infirmary, they said. Yesterday, she was—frightfully—broken out—even the palms of her hands—the soles of her feet—

MRS. DELANEY *(wilting into a chair):* Douglas—what—?

DOUGLAS *(gently):* The doctor called it—smallpox, dear—our poor, pretty little Robin! *(He presses his hand across the back of his neck as if in distress.)*

MRS. DELANEY *(in whisper):* Smallpox—Roberta—what about Roberta?

DOUGLAS: All right—so far—

MRS. DELANEY *(apparently too stunned to cry):* But how—where could Robin have—have got it?

DOUGLAS: The colored maid on their hall—

MRS. DELANEY: Are there others—besides Robin—?

DOUGLAS *(groaning):* Only one—the others were vaccinated before leaving home—

MRS. DELANEY: But Roberta—?

DOUGLAS: Only Heaven knows the answer to that! Believe me, I didn't take any more chances—

MRS. DELANEY: You didn't have her—oh, Douglas—you didn't have her—vaccinated?

DOUGLAS: I certainly did!

MRS. DELANEY: That awful stuff—in my lovely little girl—

DOUGLAS: But if you could see Robin! You'd choose vaccination, too. I had the doctor vaccinate *me.* And I wired the school to have Warren vaccinated without delay. Doris, they're afraid for Robin's eyes—

MRS. DELANEY: Douglas—how *could* you? Oh, Robin—Robin—*(as if with sudden decision)* I'm going to her—

DOUGLAS: Yes, I thought you'd want to go—I reserved a drawing room before leaving the station.

MRS. DELANEY (*turning to* MRS. VANCE): I am called away—my little daughter is ill—very ill—

(Continued on page 84)

Gangway!

America's most active burners of food energy are at it again

Firemen? Better call them "incendiaries", the way little youngsters burn up precious food energy. They daily use up more of it for their size than grown-ups do. Each new morning finds them with their supply pretty well dwindled. That's what makes right breakfasts tremendously important for them . . . and Cream of Wheat so much in demand.

Muscle-building protein is supplied by hot Cream of Wheat. But far more important is the abundant quick food energy this cereal gives for play and work and growth. Your own doctor will undoubtedly tell you that. And as part of an adequate diet, Cream of Wheat also helps promote steady weight gains.

"Yum-m-m!" says young America . . . and downs 3½ million steaming bowls of Cream of Wheat daily. This grand cereal is digested rapidly, and leaves no logy feeling. Digestion begins in the mouth. That tempting flavor comes from the best hard wheat, sun-ripened in the most favored growing areas. It is then heat-treated and blended according to a formula proved by 42 years.

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"Run along home with that cold, Bill"

Wise parents, like wise teachers, know that the best place for a child with a fresh cold is home, resting in bed.

WHAT seems to be "just a cold" often turns out to be the beginning of measles, scarlet fever, whooping cough or some other contagious disease that may be epidemic. Keep your sick child away from other children. If the symptoms persist or there is fever, send for the doctor.

No person of any age should neglect a cold. In its early, acute stage the infection is easily spread, often sweeping through entire families, schools and factories.

By allowing a cold to drag on without proper treatment, you may let down the bars of resistance to pneumonia. If you take care of colds, and others do the same, everybody would be spared many serious illnesses.

Pneumonia is an inflammation of the lungs. It comes on usually with a chill, followed by a high fever, accompanied by pain in the chest or side, and coughing. A doctor should be called without delay. With prompt medical treatment and competent nursing, pneumonia can usually be controlled. There are more than 30 kinds of pneumonia. Each is caused by a different type of germ which can be identified. An increasing number of laboratories have facilities for rapid sputum "typing." The serums now available for certain types of pneumonia are highly effective, provided they are given in time.

Start a simple course of treatment at the first signs of a cold. Rest in bed, if possible, or at least indoors. Eat lightly. Drink plenty of water and plenty of broth and citrus fruit juices. With precautions it is unlikely that a cold will develop into serious illness.

Colds and pneumonia both may follow lowered bodily resistance. There is much that can be done to keep vitality high during the coming winter months. The Metropolitan's booklet "Colds, Influenza, Pneumonia" contains many practical suggestions on building resistance against such infections. Send today for your free copy. Address Booklet Department 138-Z.

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AFTERNOON STUDY CLUB

(Continued from page 82)

you will send my things on, won't you?

MRS. VANCE: Oh, my *dear*, I'm *so* sorry to hear it—of course I'll send your things—

MRS. DELANEY: Give her the address, Douglas, please. Mrs. Vance—my husband; Douglas—my hostess—

MRS. GOODRICH (*she and* MRS. DAWSON *followed* MRS. VANCE): My check, Mrs. Delaney, to whom do I make it out?

MRS. DAWSON: I'll get Mrs. Cunningham's membership fee and send it on to you—

DOUGLAS (*turning from* MRS. VANCE): And now to find a doctor—

MRS. DELANEY: Whatever for, Douglas?

DOUGLAS: Why, for you, of course!

MRS. DELANEY: For *me!*

DOUGLAS *(firmly):* Yes, you must be vaccinated—before we get on the train—

MRS. DELANEY *(equally firmly):* I'll *never*—

DOUGLAS: Then you don't go to Robin—

MRS. DELANEY: Douglas Delaney, you can't keep me from Robin—my own baby—

DOUGLAS: I can—and will—keep you from getting smallpox—oh, Doris, when you see her! *(He drops into a chair and covers his face with his hands.)* To think I could have saved her—from this—my little Robin! *(He rises abruptly.)* Why isn't more said about smallpox—and how awful it is?

(MRS. DELANEY *begins to cry.* MISS FANNY *has been standing near, drinking tea, chatting with* MRS. CUNNINGHAM, MRS. ARNOLD *and* ELIZABETH *and watching group at center.*).

MISS FANNY (*approaching* DOUGLAS): Mr. Delaney? I am Fanny Fosdick. Is something wrong? Perhaps I can help—phone a message—do an errand—?

DOUGLAS: You are very kind. No, there's nothing, thank you. Our little girl is awfully sick with smallpox—

MISS FANNY *(gasping):* Smallpox! (MRS. VANCE, MRS. GOODRICH *and* MRS. DAWSON *look amazed and distressed.*)

DOUGLAS: Wait—there *is* something you can do! Tell me where

I can find a doctor who will do a vaccination right away. Mrs. Delaney and I want to get a train out in forty minutes.

MISS FANNY: Just a minute—(*She goes to* MRS. ARNOLD.) Do you think Larry is still in his office?

MRS. ARNOLD: Let's see—yes—he had some patients coming in after regular office hours.

MISS FANNY: Good! (*To* ELIZABETH) May I borrow your car?

ELIZABETH: Of course—but what ——?

MISS FANNY: Thanks—I'll tell you later! (*She returns to* DOUGLAS, *who has been watching her, his arm over his wife's shoulder.)*

ELIZABETH: Now what's she up to?

MISS FANNY: I'll take you to a doctor right away. Then I'll run you down to your train.

DOUGLAS: That certainly is kind! Doris, dear—come. (*He assists her to her feet and leads her to door, left.* MRS. DELANEY *is completely overcome. Exit.)*

MISS FANNY (*waving her hand at* ELIZABETH): Take a cab home! Charge it to me, Elizabeth! (*Exit.)*

MRS. DAWSON (*rushing over to* ELIZABETH): Did you hear the news?

MRS. VANCE (*following with* MRS. GOODRICH): My *dears—what* do you *suppose* has *happened?*

ELIZABETH: Is Mrs. Delaney ill?

MRS. VANCE (*delighted to inform):* My *dear!* She's gone to be *vaccinated!*

ELIZABETH, MRS. CUNNINGHAM AND MRS. ARNOLD (*one voice, three different keys):* Vaccinated!

MRS. VANCE: Her little girl has smallpox—*terribly!*

MRS. ARNOLD (*sympathetically):* Poor Mrs. Delaney—how tragic!

MRS. CUNNINGMAM: Well, Janet, after what Fanny and you've been telling me and *this*—I think I'll keep the five dollars I was going to use for membership in the league!

MRS. GOODRICH: Better still—add it to my five hundred, and give it to the Children's Hospital.

ELIZABETH (*reverently):* And they lived happy ever after—ain't nature just *grand!*

CURTAIN

[AUTHOR'S SUGGESTIONS: Makeup on the actors planted in the audience should be lighter than those on stage but heavier than street makeup. Cue pick-ups *must be very prompt* to keep play moving. The rôle of Mrs. Delaney requires an actress of some versatility.]

"SAFETY FIRST"

(Continued from page 14)

were responsible for an economic loss of about $720,000,000. It is estimated that 170,000 of these hurts caused permanent disability, such as a stiffened joint or the loss of an eye, a hand, a leg or an arm.

Among children under 15 years of age the most important type of fatal accident was burns and scalds. In the 25 to 64 year age groups, falls made up about one third of the death total; and among older adults, falls constituted more than three fourths of all home deaths.

During the past two years the National Safety Council made a study of home accident cases hospitalized in the Cook County Hospital, Chicago, obtaining complete reports on more than 4,602 cases. The mechanical causes of home accidents responsible for most of the injuries were disorder, improper equipment, improper use of equipment and houses in need of repair. Among personal causes were poor judgment, child injury through adult carelessness, physical frailty and hurry.

There were about 10,000 more home accident fatalities last year than the combined total of suicides and homicides.

Accidental deaths from burns and falls, which together comprise two thirds of the home death total, occur in the following locations: bedroom 27 per cent, living room 14 per cent, kitchen 13 per cent, stairs 9 per cent, dining room 7 per cent, bathroom 4 per cent, other places inside the house 3 per cent and outside the home 23 per cent.

Falls cause most home fatalities. Then come burns. Next in order come the following: poisoning (gas excepted), absorption of poisonous gases, mechanical suffocation and firearms.

Probably not many persons realize that the round type of goldfish bowl causes many fires each year. Its prismatic surface focuses the sun to a pinpoint of heat which can ignite even a hardwood floor.

Flour and cornstarch are highly explosive under certain conditions. Neither should be used near an open flame.

A coin should never be used to "back" a fuse that has blown out. The fuse is a miniature safety valve as well as a conductor of current.

This year the public mind, so long anesthetized by complacency, will wake up and demand: "What has been done about this thing?" Our citizenry will "view with alarm" and lobby for action. Well, what *has* been done about cutting

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the home accident rate? Some one, surely, saw the debacle in the offing.

The National Safety Council has been pioneering in the field for years. Its annual booklet, "Accident Facts," makes statistics walk, talk and sit up and beg. Many of the larger insurance companies are active. Through distribution of brochures and papers and through lectures, these companies, their coffers preyed on by death masquerading as happenstance, have long waged war against accidents in the home. In 1935, President Roosevelt called together all safety organizations under the leadership of Secretary of Commerce Daniel C. Roper in an effort to pool national resources. Perhaps because so many organizations and individuals attended this gathering, nothing too definite came of it; there was too much wood piled on the flame to allow the fire to burn well. Other organizations and groups, seeing the holocaust coming, sought to stem the tide. Only the general public, the very householders who were menaced, remained indifferent.

However, it fell to the lot of the American Red Cross to take home accident prevention out of the mail-order class and personalize it. This free-lance organization of the people, the nation's doctor for mass disaster, recognized the fact that disaster to the individual family in the form of home accidents was a greater problem than endemic fire, storm or flood. Anticipating an early eclipse of highway accidents by fireside mishaps, Red Cross adopted home and farm accident prevention as a continuing program two years ago. Mildly it believes that some time must elapse before its individualistic activities result in a downward graph on the chart of home accident occurrence.

Red Cross knew it was undertaking a thankless job, realized it would be rated by many as meddlesome and interfering. Depending on the support of the people for financial health, it knew that home accident prevention was a weak selling point. But the problem was acute, threatening to rupture, and the Red Cross shrugged and took the bull by the horns.

There are 12,300 Red Cross chapters and branches in the country—one in every county. This, then, was the means of attacking the job from a new angle, of applying pressure by a door-to-door campaign instead of by direct mail. A few paragraphs are in order to illustrate how practical angles can be applied in attempting solution of so intangible a problem.

The National Safety Council realized that the Red Cross had entrée to the *front* doors of millions of homes, so they placed their fact finding facilities at the disposal of that organization. Next, the support of progressive education was enlisted, for it was essential that both America's little red schoolhouses and metropolitan erudition hoppers fall in line.

Then Red Cross called on its 8 million junior members, school boys and girls, public, private and parochial, in every community of the country. Youth, it was reckoned, is more easily sold than maturity, much more enthusiastic after the selling.

That first year, 1935, nearly 25 million home accident check lists were distributed to Red Cross Juniors and their supporting reserves. The children took these check lists home and clamored to be heard. It was their project; parents could pooh-pooh but could not spoil the game. Here was a chance to "get" something on Dad and deliver a few I-told-you-so's to Mother. The parents were asked to supervise the inspection; and when this was done, the check list went back to the school signed. By this means it was accurately estimated that more than 10 million American homes were lawfully entered, ransacked and robbed of hazards.

Last year the process was repeated, and this year it will be done again. Nothing to show for it yet, but it seems more than likely that eventually there will be. The Red Cross cannot even begin to do the job alone, nor can any organization. But perhaps its activities have pinpricked the bubble of public indifference. The festering boil of too much privacy has been lanced, and now every one must aid with the draining process.

What can be done in the future? More of the same? Certainly, but individual awareness must go in for mass production to make both sanctity and safety synonymous with home.

Industry has been accident-proofed. Work accidents, when taken seriously, showed an astonishing decrease—and merely because the employer "fine-toothed" his profit and loss ledger and discovered that accidents on the job resulted in unprofitable lost time and cost too much. So the employer made safety a homey virtue, taught first aid to key persons and disciplined the man who took a chance.

America is an industrial nation with an incredible record of industrial growth. Surely if we can cur-

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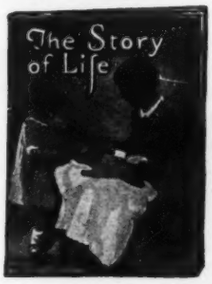

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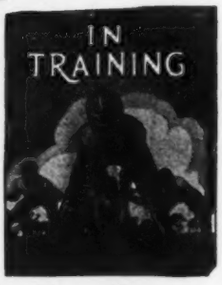

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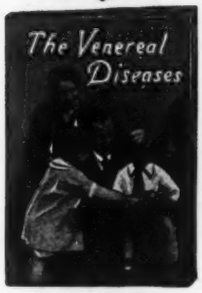

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tail work accidents we can do away with accidents in the home! It will be necessary to rout the misconception that the home is safe. It will likewise be necessary to dramatize the occurrence of accidents, bring them out on the public green and verbally pillory their perpetrators. It would not be a bad idea for every householder in the nation to learn first aid. Admiral Cary T. Grayson, chairman of the Red Cross and past physician to presidents, tells me that instruction is offered without charge in most communities. And it is, of course, essential that people be told against what hazards to guard.

But here we have the family—the core, nub and acme of private enterprise—girded for a last ditch fight. You can relieve a man of his pocketbook with comparative ease, but woe to him who would sit in a stranger's easy chair unasked and tell him that he is running the one-man venture of raising a family in such a manner that the lives of his assets are endangered. The home, above all else, will always be militantly defended against the slightest suggestion of criticism and invasion.

Highway accidents can be curbed to some degree through legislation, improved roads and enforced traffic regulations. To some extent reckless drivers can be piped down to the tune of the patrolman's whistle. But community and state are powerless to prevent the head of the house from subjecting his family to unreasonable hazard.

Imagine the outcry which would arise should the head of the family be taxed for tolerating faulty wiring fixtures, fined for loose railings and slippery rugs, thrown into jail for failure to have the cellar stairs adequately lighted, committed to an asylum for leaving poisons within the reach of his children. Try to visualize the resulting furor should the county commissioners, say, spank the children who left marbles on stairs for unwary adults to tread on! No, there can be no regimentation here. The change must come from within, not from without.

The only sure cure lies in realization of the need for realization. And thanks to last year's 6,500 increase in home accident fatalities it is possible that those primarily concerned will see the light and do something about it. Now that America's home safety record has become offensively odorous, corrective steps may be taken. Because more persons were killed during 1936 in allegedly safe homes than on admittedly unsafe highways, we may soon learn to *live* at home and like it.

"Cold, cold, who's got the cold?"—a rather important query at this time of the year, when you may feel fine one day and on the next be overwhelmed with sneezes, sniffles and all the other punishments that come with a cold—bad or not so bad. It's all the more important when you realize that the symptoms of a cold are often just a mask for some much more serious affliction. You will find a good discussion of colds by the Metropolitan Life Insurance Company on page 84, and also an invitation to send for their free booklet, "Colds, Influenza, etc."

The tiny little tike three months old who has a dose of cod liver oil thrust into his mouth may not raise any serious objection—in fact, may like it. But with the youngster or with the adult the case is different, and it is mighty satisfying to know how surprisingly simple and easy it is to get the daily dose of the vitamins A and D in the form of I. V. C. Halibut Liver Oil Capsules. You can purchase them at most drug stores, but any desired information will be gladly supplied by the International Vitamin Corporation. See announcement, page 7.

Thumb sucking seems such a downright pleasure to the baby that parents are often inclined to do nothing about it. Then too, the most drastic measures may fail to stop the habit. But many a youngster has been totally discouraged by the very easy and humane process of applying Bite-X to the favored thumb or finger. You will find details on page 86.

A good help toward getting the cooperation of young children in using an antiseptic for slight cuts, scratches and abrasions is Mercurochrome in the handy applicator bottle. The bright red color just naturally appeals to the child's eyes. And shucks! it doesn't hurt any more than water when you apply it to the cut. See announcement, back cover.

"High chair" or "low chair" for the baby? Maybe you never thought much about it, but look at the picture and description of the Babee-Tenda, in announcement of the Fort Massac Chair Company, on page 86. You may then want to write for full details of this new piece of baby furniture. Your request will be welcome.

Have you followed the instructive series of announcements by Petrolagar Laboratories, discussing the ways in which bowel habits may be affected by diet, exercise, etc.? The last ad in this set appears on page 5 of this issue, and next month an entirely new series, just as interesting and enlightening, will start. Watch for it.

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MODERN MEDICAL CHARLATANS (Continued from page 24)

clocks in addition to conducting a mail order catalogue business, publishing his magazine called *TNT* (The Naked Truth) and broadcasting his radio messages.

After Baker had sued the American Medical Association for half a million dollars in damages, his complete biography became available. It seems that his education went no further than one and a half years in high school. After that for two years he worked in machine shops. Then he went into vaudeville, putting on an act in hypnotism. He continued this work for eight or ten years. In 1914 he went back to Muscatine, Iowa, where he started to manufacture calliopes. When the calliope business went weak he was back on the road "putting on an act." In 1920 his factory burned, and he started a mail order business. Among other things he advertised that he could teach oil painting in ten lessons by mail.

His broadcasting went on the air in November 1925. It was his plan to exploit a cancer cure which had been developed by a man named Ozias in Kansas City. For the demonstration of the Ozias cure he employed a woman named Mary Turner, who had originally worked for Ozias in person. Then he made an arrangement with a son of a former veterinarian named Harry M. Hoxsey. The veterinarian had discovered a paste which would remove knots off the legs of horses; this paste he began exploiting as a cancer cure. This nostrum for cancer was boomed by Mr. Baker over his radio station KTNT, which could be heard almost anywhere after 11 p. m. This was exceedingly proper since it was the time of night when many devious and doubtful ventures were promoted. Over his privately controlled station, Baker indulged in a repetition of much of the scandalous insinuation that proprietary manufacturers used back in 1905 when they first attempted to hinder the battle of the American Medical Association against medical fraud.

Since the American Medical Association exposed Baker he announced that the American Medical Association had offered him a million dollars for his cancer cure in order that it might be withdrawn from the market so that sufferers from cancer would be compelled to resort to surgery, x-ray and radium. The lie is so obviously false to any person with intelligence above that of a moron that it needs little thought to convince hearers of its fallacy. Even if the American Medical Association had a loose million dollars lying around ready to be spent, it is quite certain that a number of better ways for spending it would have occurred to the trustees who are responsible for the funds of the association. The income and expenditures of the American Medical Association, which is a corporation not for profit, are regularly recorded and testified to by a competent firm of auditors. During his trial, Baker declared that his monthly receipts from his cancer cure activities started at $1,000 for October 1929 and climbed to over $75,000 for June 1930. And then after the American Medical Association had exposed him his income dwindled until in January 1932 he took in about $7,000. What has Mr. Baker done with the money that he snared from the pockets of sufferers with cancer?

The viciousness of Mr. Baker's broadcasting lies not in what he said about the American Medical Association but in the fact that he induced sufferers from cancer who might have had some chance for their lives, if seen early and properly treated, to resort to his nostrum.

Every radio communication sent out is broadcast at the risk of the transmitting station. Its programs cannot lawfully be censored. The programs that have been broadcast may be used, however, in determining whether the station is one that is serving the public interest, convenience or necessity. No license can be issued by the Federal Communications Commission in the first instance until the commission has determined that the station will serve the ends named. At any time while a license is in force, the commission may require from the licensee written statements of fact to show whether the station is or is not still serving those ends. If such statements reveal conditions that would warrant the commission in refusing to grant a license on an original application, the license may be revoked. It is primarily the public interest and necessity that the law seeks to protect. It is to the Federal Communications Commission that the public must look for protection.

After the exposure of the Baker method, the Federal Communications Commission refused to renew

(Continued on page 90)

TOYS for CHILDREN

(Continued from page 43)

clothing which will withstand strain must be selected for such occasions so there will not have to be any reminders about not tearing clothes. A set of garden tools with a patch of ground alloted to his use will prevent any child from digging unsightly holes in the yard. Purchase as much playground equipment as the size of your lot and pocketbook will allow, for the best play of all is had outdoors.

Suggestions as to a change of play will be the secret of solving the children's problem when they announce that they are tired of playing with one piece of equipment. A variety of homemade apparatus can be built with a little ingenuity, such as the rope swing, the seesaw, the horizontal bar, the sand pile, the scooter and the shallow pool for gold fish or for floating boats. The boy who ingeniously designs a crude device for coasting, creating it of such things as the wheels of a discarded baby carriage, a wooden box and the steering gear of an abandoned automobile, is often the envy of the neighborhood.

Rainy days may call for the use of stencils, paints, crayons and clay; but on clear days, these occupations and other types of "busy work" can be carried on outdoors.

Basements or garages make excellent work shops. Many parents encourage the boy's tendency to do manual training work by supplying him with boards of suitable length that will not split each time a nail is driven in. A tool box containing several well made tools will be a source of delight to any boy who loves to make things. Cheap tools, that is, poorly constructed ones, will merely discourage the boy's efforts and check his desire to create.

All such things come in the classification of toys, if they are to assist play, for to a certain extent, play is real vocational training. A trunkful of clothes worn long ago is a priceless treasure "toy" to the child talented in dramatics. The young children dressed up in costumes will often express in pantomime what they cannot yet express in words.

It is well to remember that it is often the suitability of the gift rather than the value of it that counts and that in the play life of the child are grounded many of the characteristics which will mold his future, influence his success or failure in life and determine his happiness as a well integrated human being.

Schools and Camps

Has your child heart trouble, asthma, diabetes, nephritis?

He may lead a normal life, grow strong and learn in the sunshine at

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SANTA BARBARA, CALIFORNIA
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Tutoring and vocational schools for boys and girls with educational or emotional difficulties. Helena Devereux Fentress, Dir., or John M. Barclay, Reg., Box 90, Berwyn, Pa.

Schools and Camps for Exceptional Children (Continued)

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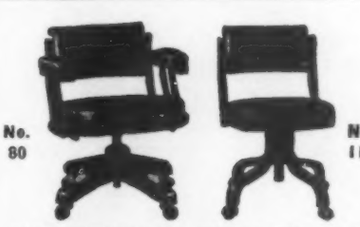

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ACCEPTED FOODS

This department is a useful guide in the selection of foods of quality, advertised with truthful claims. All products in this section as well as any others advertised elsewhere in HYGEIA stand accepted by the Council on Foods of the American Medical Association, and are entitled to bear its "Seal of Acceptance." The foods listed here are but a portion of those accepted by the Council. If you desire information regarding any other food product, you are invited to write to HYGEIA.

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made from properly ripened grapes. Contains no added sugar, water or other substance whatsoever.

Free from the excess acid of unripened fruit.

Church Grape Juice Company, Kennewick, Wash.

MODERN MEDICAL CHARLATANS

(Continued from page 88)

Baker's license on the grounds that renewal would not be in the public interest, convenience or necessity and that the station had subordinated the interests of the listening public to the interests of the licensee. In March 1931 the station went off the air. But that did not stop Baker! After he had lost his damage suit, he left the great state of Iowa flat on its back and in October announced the opening of a new station to be called XENT in Nuevo Laredo, Mexico, just across the Rio Grande. He was licensed by the Mexican government to establish a station operating on 150,000 watts, and from this station he continues to broadcast his vicious attacks against the American Medical Association and the Federal Communications Commission.

By the use of this radio station he has sent listeners to his hospital in Muscatine, and that hospital also has recently attempted to obtain and support licenses to operate a radio station. Fortunately the Federal Communications Commission has not seen fit to grant such a license.

In April 1937, Baker was sentenced by a federal judge in Texas to four months in jail and to pay a fine of $2,000 for conspiracy to maintain and operate a radio station abroad using records of sound made in this country. The latest reports indicate that he is trying to get himself a station in Arkansas and that he proposes to set up a Baker hospital in that state. It is impossible to establish how many hundreds of thousands of dollars he has reaped for himself out of the groans and agonies of those who have suffered or who have thought themselves to be suffering from cancer.

[NOTE.—Part 2 of this article, which will appear in the February HYGEIA, will contain a discussion of dietary quacks and other charlatans.]

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BOVRIL... SEE PAGE 95
BEVERAGE
BEEF STEAK
Easy to make — Easy to take

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A GOOD MILK FOR THE BABY

• Ask your family doctor about White House Brand Evaporated Milk for baby's feeding formula. And use it in cooking—wherever your recipes call for milk. See page 96 for details.

SOLD BY A & P STORES

TO AMERICA'S SCHOOLS—YOUR HEALTH

(Continued from page 76)

belief by the fact that while the disease is known to be contagious and to be spread as colds are spread, which has been proved by animal experimentation, few cases seem to be related to other cases. This indicates that spread must be through unrecognized cases, very much as in the case of scarlet fever and diphtheria.

If this theory is correct, as available evidence suggests, the main cause to fear infantile paralysis is its complication, paralysis. Probably many a family worrying about the danger of the disease has nothing to worry about. While this point of view in no way reduces the danger of the disease when it is acquired, it should give some sense of security to be able to realize that the danger of getting it is far less than is commonly believed.

When infantile paralysis appears in a community, nobody knows yet exactly what precautions to take. Therefore there are two differing points of view about what to do. Some officials at once close the schools; others do not, pointing out that children are safer in schools where there is good nursing and teacher supervision and where ill children are excluded at once than they are when playing without supervision in neighborhoods, yards, streets or alleys or going to the movies. Closing the movies to children is also tried; this is illogical because there are so many other places which ought to be closed too, such as department stores, street cars, churches and any other places where crowds gather. Closing up a whole community is impossible; and so unless the whole community can be closed up, it is better to keep the schools open, provided they are well supervised from the health standpoint.

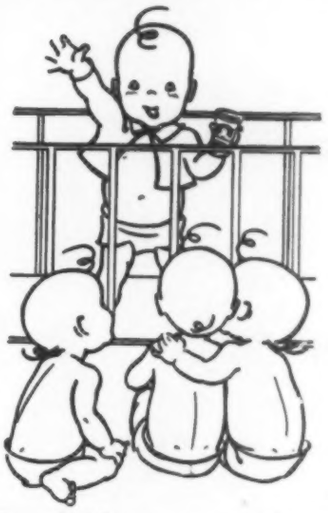
While nobody knows exactly what to do, it seems sensible in the presence of a contagious disease of partly unknown character to avoid needless mingling with crowds, to keep the general health as good as possible by a good diet and plenty of rest and fresh air, and to minimize the danger of carrying infection to the nose and throat on fingers by taking extra care about washing hands before eating. There is no vaccine or serum which can be relied on to prevent the disease.

Special efforts are constantly being made by medical and public health workers to find ways and means to prevent the disease. Many of these experiments must be made on animals, of which monkeys are the only ones which can be used because other animals do not take the disease. Animal experiments have proved that the infection enters the nose and reaches the brain and the nerves along the nerve of smell, which passes from the upper parts of the nose through a sievelike plate of bone above the nose. It has been found possible in animals to seal this plate against the passage of the infection by a spray of 1 per cent zinc sulfate, a substance with a puckering action somewhat like that of alum. This is now being tried experimentally on human beings. It is known to be harmless, though often uncomfortable, giving rise to severe headaches. The effect is temporary, and therefore the process must be repeated. It is not something that can be done at home; special equipment and special skill make it practically a job for the nose and throat specialist. There is no promise of certain protection. The procedure should therefore be watched with sympathetic interest, and no other precautions should be neglected.

When the disease appears or, better, when it is prevalent in a community and any slight illness appears, the doctor should be called at once. Seeing the child early and often, he can detect any changes in muscle strength and reflex actions (an index to the nervous system) as the hours pass. If paralysis appears, it is possible in most instances to support and splint the limbs so that the damage is held to a minimum. In serious cases where the breathing muscles are affected, the respirator, popularly known as the iron lung, keeps the patient breathing mechanically until recovery has a chance to take place. A new, lighter, cheaper and more comfortable device, known as the jacket lung, is now being tested. This encloses only the chest instead of the whole body and thus makes the patient more comfortable and facilitates the giving of nursing care.

When fever has subsided and pain and soreness are gone from the muscles, but not sooner, the task of rebuilding weakened muscles begins. This is accomplished by exercise, massage, electrical stimulation and the application of heat by various methods, all under close supervision by a physician, and all rigidly limited to what the patient can endure without injury. Exercise during immersion in warm water is one of the most effective of these methods. Sometimes operations on muscles or nerves are required.

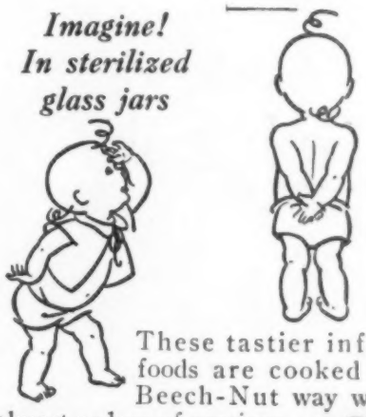
"*My frien's...* good news for us"



Beech-Nut now applies its famous care to strained foods

Food kitchens where walls are white enamelled and spotless, and the very air itself is fresh country air. Old, old Beech-Nut customs! Now they provide ten varieties of the purest strained foods.

Imagine! In sterilized glass jars



These tastier infant foods are cooked the Beech-Nut way with almost no loss of precious nutritious values—*fresh, in sterilized glass jars* and sold at popular prices.

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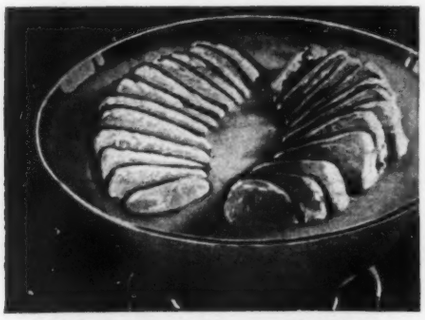
Varieties: Peas, Apple Sauce, Green Beans, Beets, Prunes, Spinach, Apricots, Carrots, Vegetable Soup, Blended Cereal



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YOU KNOW HIM . .

but do you know the reasons why Cream of Wheat is the preferred cereal in millions of American homes? Some of the important facts are given on page 83. But why not make an actual trial?—50 generous servings at less than half a penny each!

The Cream of Wheat Corp. Minneapolis, Minn.

What's in a Can of Canned Food?

Modern knowledge is shattering many false ideas about canned foods. Be sure to read the highly informative series of ads in HYGEIA on values of canned foods. See Second Cover.

AMERICAN CAN COMPANY, New York City

WHEATIES

Make youngsters eat big breakfasts—start them off with a heaping bowl of Wheaties, the new whole wheat cereal. Nutritious and delicious. At your grocer. See 3rd Cover.

Finally, when there remains paralysis which defies treatment, and medical care has done all that is possible to restore function, there comes the big job of restoring the patient to a normal life. Learning all over again to do things that used to be done with ease may take long, patient training. Discouragement is the great danger; but on the other hand, too much babying destroys self reliance. The patient must live as nearly a normal life as possible with safety to himself; he must do for himself everything that he possibly can and lean on others as little as possible. Great wisdom and self control are demanded of parents at this time; they must not allow their sympathies to overcome their judgment and permit themselves to do too much for the patient and thus make him dependent instead of independent.

In order to call attention to polio and to raise money for the continued study of the disease and the training of persons in the use of methods for restoring function to paralyzed limbs, President Franklin D. Roosevelt permits the use of his name, as a victim of the disease, in connection with dances held each year on his birthday, January 31, to raise money for fighting polio. Seventy per cent of this money stays in the community where it was raised for local use as needed. The remainder goes to finance the Warm Springs Foundation for study of the disease and training of persons for carrying out methods of reconstruction.

There should be no mistake about warm water treatment. There is nothing special in Warm Springs, Ga., water or any other water that is curative. Any warm water, wisely used, will do. The secret of the treatment is that water supports weakened limbs, making them lighter. Weakened muscles can move them. Gradually strength returns. No reconstructive treatment should be attempted except under medical supervision. Swimming and underwater exercise without competent advice may be worse than useless.

REFERENCES FOR THE TEACHERS

Texts previously recommended.

CONTAGIOUS DISEASES by W. W. Bauer. Price, $2. New York: Alfred A. Knopf, Inc., 1934.

SUGGESTED PROJECTS

Write to your state department of health and find out how many cases of polio occurred last year; how many deaths; how many cases occurred the year before; how many deaths. If possible, get them for five years back.

Compare these figures with like figures for scarlet fever, diphtheria and measles. Study all these figures, and then note that the same attention, study and care should be paid to each disease, since polio is much like them and occurs in no greater numbers; in fact, in fewer.

[NOTE.—HYGEIA will publish in this department each month similar briefs of programs to come during the succeeding month, with reading references and suggestions for things to do. Reprints of this section are available in bundles of twenty-five at 50 cents a bundle, postpaid, cash with order, for use in schools. Single copies, 5 cents. Address Order Department, American Medical Association, Chicago.

This department and the radio program are under the direction of Dr. W. W. Bauer, Associate Editor of HYGEIA and Director of the Bureau of Health and Public Instruction, American Medical Association. A workbook entitled "Your Health" has been prepared to accompany the programs. It is published by Johnson Publishing Company, Richmond, Va.]

INTERNATIONAL HEALTH CONGRESS SCHEDULED DURING NEW YORK WORLD'S FAIR IN 1939

Plans are being made for the holding of an International Health Congress during the New York World's Fair in 1939, it was announced recently by Dr. Donald B. Armstrong, president of the National Health Council. It was explained that advantage will be taken of the fact that hundreds of noted medical specialists and public health authorities, representing many countries, will be visiting New York City at the time of the World's Fair. American and foreign specialists will be asked to deliver addresses on subjects of interest not only to professional groups but to the general public as well.

NO MIX-UPS HERE

In order to remove possibility that babies in a Vancouver, B. C., hospital will go to the wrong parents each infant will now have his name "sunburned" on his back with rays from a water cooled quartz lamp as soon as he is born. The sunburned name will last for six months, and after that time it can be brought back by the lamp, if desired.

TITANS of the TROPICS

(Continued from page 80)

given to draining pools and removing plants in streams that might protect the larvae from the fish, but all vegetation was cut down within 200 yards of houses. Even the beautiful gardens about the Ancon Hospital were thus destroyed. The reward came, however, when all mosquitoes were eliminated and malaria disappeared. Conditions having thus been made safe, the gardens were replanted, and the grounds are now as beautiful as ever. In the old days the hospital had been far from popular among the employees because it had an exceedingly high death rate. A man going in with a broken leg was likely to contract yellow fever and die. Twelve hundred patients had died there of yellow fever in nine years.

The importance of good health to progress is generally accepted, but nowhere has it been proved in so spectacular a manner as in Panama. The figures compiled by Gorgas to show the saving of life and property in the Canal Zone are most impressive. He compared the actual statistics for the years during which his sanitary work was carried on there with what would have happened under such conditions as existed under the French régime, that is, before the method of transmission of yellow fever was known; and he estimated that during the ten years of work on the canal, 39,420,000 days of sickness were saved and as many million dollars, the price of care in illness per patient being a dollar a day. Seventeen instead of 200 died in every thousand, the saving with a force of 39,000 men being 71,370 lives in ten years. And beyond all this was the saving in suffering, since for every man who died under former conditions, three came home broken in health. Those who stayed and did the work would, moreover, have lacked energy. Their output of work would have been less, and higher wages would have been demanded as an inducement to come. Gorgas considered $80,000,000 a reasonable estimate of the money saved in the building of the canal by the sanitary measures taken. Indeed, he doubted whether public feeling in the United States would have allowed its building, on any terms, where the menace to health and life was so great as it had been under the French. Through effective health measures the tropics had in a few months been made safe for posterity.

Suffering from

HEARTBURN

Caused by Acid Types of Indigestion?

IF A physician recommends Bicarbonate of Soda for relief from hyperacid types of indigestion, Arm & Hammer or Cow Brand Baking Soda (they are identical) may be used because *they are pure Bicarbonate of Soda.* The usual dose is one-half teaspoonful in a half glass of cool water.

Recognized as pure Bicarbonate of Soda by the Council on Pharmacy and Chemistry of the American Medical Association, our Baking Soda can also be used in the treatment of any condition for which Sodium Bicarbonate is prescribed.

Consequently, many housewives now keep one of the handy, sealed containers in their kitchens, another in their medicine cabinets. Frequent analyses and our 91 years' experience in the production of Arm & Hammer and Cow Brand Baking Soda—they are identical—account for the purity and dependability. Available in almost every grocery store. Cost only a few cents a package.

Business Established in 1846

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GIVE your baby a lucky start in life! Serve him foods of the same high quality you enjoy—Heinz Strained Foods. The world's choicest vegetables, fruits, meats and cereals are cooked with dry steam—packed under vacuum. Vitamins and minerals are retained in high degree. And there's good flavor aplenty! By ordering an assortment of Heinz 12 Strained Foods, you'll spend less time in the kitchen —more time with baby!

LOOK FOR THESE TWO SEALS. THEY MEAN PROTECTION FOR BABY

HEINZ STRAINED FOODS

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Wholesome

King Syrup is wholesome and delicious . . . . Contains dextrose, a food energy sugar, and is excellent for growing children.

KING SYRUP

MANGELS-HEROLD CO

BALTIMORE MD

JIMMY AND THE DIPHTHERIA GERMS

(Continued from page 65)

were crippled or had husky voices for years afterward from paralysis of the throat muscles. As to trying to save them, well, you could flip a coin. Nothing you did made any difference at all. Only nature could save them!"

"Did your little brother die, then, Dad?"

"Yes, he did, and I'll never forget it!" The old doctor smoked on in silence.

Sonny was crying.

"Don't cry, Son! It just couldn't be helped, you see. None of us in those days knew how to help him."

"But why *didn't* you, Dad?" Sonny demanded, still sniffling.

"Well, Son, I guess that's the one big reason why I studied medicine! I wanted to learn about these things and help correct them! So I went to the university and worked and worked for six years, studying and learning."

"About diphtheria, Dad?"

"Yes! The first thing I heard on diphtheria was the discovery of this antitoxin by a German doctor named Von Behring. That was back in the nineties."

"And did it work?"

"I'll say it did! It brought down the diphtheria death rate in the kids from about 50 per cent to 10 or 12 per cent. That amounted to a saving of some 19,000 little lives every year the world over."

"But, Dad, what *is* this antitoxin that saves so many of us kids? What's it like?"

"Oh, it's only the blood of a horse—like old Dobbin out there in the stall."

"Does Dobbin's blood have antitoxin in it, then?"

"Oh, no, of course not! You see, he hasn't had any treatments for it."

"What treatments?"

"Well, after two other doctors named Klebs and Loeffler had discovered the germs of diphtheria, Dr. Von Behring began to play around with it in his old ramshackle laboratory, growing it in broth and such. He found it grew well in veal broth."

"Yes."

"And finally he found that if he took a little of the diphtheria germ poison, or toxin as it's called, and injected it into animals in graded doses, the animals would build up a resistance against the poison, and after a while they couldn't be made sick with it at all, no matter how much was injected. They even resisted living diphtheria germs, too.

"So after a while, Dr. Von Behring found from his experiments that the thing which was protecting the animal was something in the blood. He found that by bleeding an animal that had been treated this way, he could obtain a substance in the blood that would protect other animals and people too against diphtheria."

"Keep them from dying of it?" queried Sonny.

"Yes, and he called that substance in the animal's blood 'diphtheria antitoxin!'"

"Um-m, I see," said Sonny. "So antitoxin is only just the blood of one of these treated animals."

"Yes, horses mostly," he paused. "That was about 1894 or so, and right after that the doctors began giving it to their little patients who had diphtheria."

"Did it work, Dad?"

"Of course it worked! Saved a lot of children but, well, not all of 'em. It didn't always work. You see, it had to be given early—say, before the fourth day. Then it worked fine, but . . ." he hesitated.

"But after that?" prompted Sonny.

"Well, after the fourth day, it was a long chance, no matter how much antitoxin was given! You see, it was just too late after that. The diphtheria poison, or toxin, had gotten in its work on the child's heart and kidneys and everything."

"So diphtheria was still a big enemy of us kids," mused Sonny.

"That's right! Still about 10 or 12 per cent of those that got it died, because for one reason or another the antitoxin wasn't given in time!"

"And what came next, Dad?"

"Well, after that, this toxin-antitoxin came along. That was—oh—about ten or twelve years ago. It was given in three doses to prevent a person from catching diphtheria. That was something, sure enough!"

"Didn't it work?" asked Sonny.

"Oh, yes, it did lots of times. That's what I gave you when you were a little baby, and it usually worked fine. But sometimes it didn't—oh, in perhaps 25 or 30 per cent of those who took it."

"So some of the kids still kept on dying from diphtheria?" concluded Sonny.

"That's right! In the big cities there were still between 400 and

1,000 youngsters a year who died of it. But, of course, it was a lot better than before when so many thousands died of diphtheria."

"But still it wasn't enough," opined Sonny. "Why should any of us kids die from it?"

"You're right! We wanted to save all of 'em! So, pretty soon another doctor, named Schick, worked out a skin test, to tell whether a child can catch diphtheria if he is exposed to it."

"Like I had at school last week, Dad?"

"Yes, that's it. When a tiny drop of the diphtheria germ poison from a killed culture is injected between the layers of the skin, in a day or two it will tell whether or not your body is protected from diphtheria. Some people are, and some are not, but the test tells which ones."

"By a little red spot on the arm?" Sonny asked.

"Yes. If it's red the next day or two, you can get diphtheria; if it isn't, you can't."

"That's a good thing to know," commented Sonny.

"Then those that are in danger can be given this new toxoid, and then after a while they can't catch the disease any more, even if they're exposed."

"This new toxoid," remarked Sonny, "sounds pretty good, I think. It sort of takes the place of the old toxin-antitoxin that you gave to me?"

"Yes, but it works quicker, and it takes fewer doses than the other."

"Who invented it?"

"A fellow by the name of Ramon, a Frenchman."

"What's it made of, Dad?"

"Oh, it's made from a veal broth culture of the diphtheria germs which has to be grown in an incubator for seven days. Then the live germs are filtered out, and a germicidal chemical, formaldehyde, is added. Then it's put in storage for from 3 to 6 months for the ripening process, as it's called. After that the solution has lost all its poisonous properties, both for animals and for people."

"So it can't do any harm to any one?"

"No, no harm at all; but it is still able to make the animal or person build up a resistance against diphtheria. That's what toxoid is for—to make people build up their own resistance."

"Oh, I see," said Sonny. "So as to make us kind o' protect ourselves, after a while."

"That's it to a 'T,' Son. 'Active immunity' it's called when you develop your own antitoxin in your own body."

"Sounds like the best way, Dad."

"It *is* the best way, because it lasts!

"Well, Dad, is this the 'toxoid' that Dr. Elston, the state health officer, used to keep diphtheria out of here for a whole five years?"

"It sure is, Son. Three doses, a week apart, are given to every kid in and out of school, and he saw to it that they all got it, too!"

"No kidding!" Sonny laughed. "But I guess it did the work!" he mused.

"It surely did! In five years the only child anywhere around here that got diphtheria was your friend Jimmy, who never heard of toxoid. I'll say it must be good!"

"But, Dad, what's this new alum toxoid I heard the school doctor telling about? Is it so much better?"

"I was talking to Dr. Williams about that today, over at the county laboratory. I think maybe it's just a bit better than the old plain toxoid. Anyway, it only takes two doses now to do the work, instead of the two or three doses we used to give. And then, also it works quicker in protecting a child. It requires only one or two months to protect most children as against four to six months by the older methods."

Sonny nodded assent. Then, "I'm getting kind of sleepy, Dad. But tell me, has this toxoid they give to us kids really stopped diphtheria any better than the antitoxin did—like you said?"

"Yes, it has, Son. In one of the big cities that used it, a fellow at the last medical convention said that the deaths from diphtheria had been cut down from 411 in 1930 to—what do you think, Son? —to 41 in 1934. That's something!"

"Sure is, Dad," agreed Sonny drowsily as his head drooped against his Dad's shoulder. "Looks like the rest of us kids don't need to worry much about this diphtheria that Jimmy has, do we, Dad?"

"No, not a bit, thanks to this new toxoid we have."

"We can just forget it then. An' Jimmy wouldn't have had it either, if he had learned about it in time?" asked Sonny.

"Yes, that's right," said the doctor.

"And," more drowsily, "I guess maybe he was pretty lucky to have you for a doctor, Dad, wasn't he?"

"Maybe you're right, Son."

Sonny had lapsed into dreamland, too tired for anything more.

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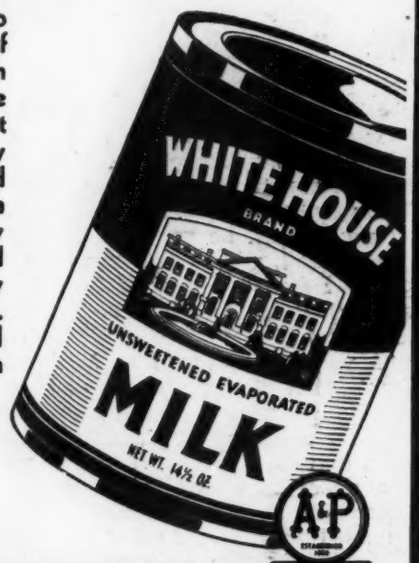

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[NOTE.—*No child needs to die from diphtheria! Science has forged sure weapons against it. If you do not know what those weapons are and how they came into being, read the radio announcement on page 75, and tune in on Wednesday, January 19, for a stirring dramatic presentation.*]

TWO SEPARATE EDUCATIONAL PURPOSES TO CONSIDER

One of the weaknesses of American education at the present time is that it does not adequately distinguish between two purposes of education in a modern democratic society. These two purposes, both essential, operate in respect to the same individual. From the point of view of social welfare, society needs:

1. To give to every individual all possible preparation for successful, wholesome living—limited only by the resources that are available or can be made available, with the clear understanding that it is the central purpose of an ideal economic organization to utilize its resources primarily for the benefit of all rather than of few.

2. To select most carefully and train thoroughly the individual to carry on society's work. Granted that society needs some workers who must be prepared over a much longer period than others and that these workers—scientists, technicians, physicians and teachers—must be selected from those who have sufficient ability for these special tasks, it becomes the task of education to select these workers and train them.

These are two functions that may or may not be carried on in the same institution. For example, it is to the advantage of society to have the widest possible understanding of physical and mental good health and the maximum everyday practice of good habits in this field, and every effort should be made to provide education accordingly. In addition to having abundant opportunity to practice the ways of healthful living, individuals at every level of age and ability should have an opportunity to explore the sciences that underlie individual and community good health.—*Child Study.*